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Idealist Philosophy of Space

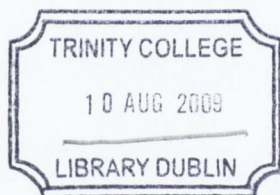
Kant's Criticism of Berkeley

by

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Submitted in fulfilment of the requirements for the
degree of Doctor of Philosophy at Trinity College,
Dublin University, in the Department of Philosophy

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THESIS
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Summary:

In this thesis I have argued that Kant and Berkeley *both* took our experience of things in space to be real and veridical. Further, and what I take to be the most striking conclusion from this thesis, is that in fact these two ‘idealists’ took the human body to play a constitutive role as a necessary condition for outer experience and our geometrical knowledge.

Accordingly, I have argued for a close affinity between Kant’s and Berkeley’s conception of space. I have brought Kant closer to Berkeley than is usual by arguing that the Kantian subject that ‘generates’ the pure intuition of space and that carries out geometrical constructions in this pure intuition is necessarily an embodied subject. I have also brought Berkeley closer to Kant than is usually done by arguing that the aspects of being embodied that Berkeley claims are necessary for any geometrical knowledge and for outer experience are transcendental conditions for embodiment as opposed to merely empirical conditions. By moving both thinkers towards each other simultaneously, so to speak, I believe that neither is Kant turned into an ‘empiricist’ nor is Berkeley turned into a ‘rationalist’. Rather I conclude that with regard to outer experience and geometrical knowledge they are both better described as transcendental philosophers.

Chapter 1: The aim of this chapter is; first, to trace and identify the main historical factors that contributed to the identification of Berkeley’s and Kant’s form of idealism; second, to trace Kant’s early understanding of Berkeley.

Chapter 2: In this chapter I first consider the absolute and relational conceptions of space, Kant’s criticisms of these, and his own alternative view of space. Then I examine Kant’s criticism of Berkeley in the *Prolegomena* and the second edition of the *First Critique*. I identify two distinct arguments against Berkeley. The ‘epistemological argument’ that since for Berkeley space is a merely empirical representation he can have no criteria of truth in experience and the ‘metaphysical argument’ that since Berkeley thought that space and therefore things in space are non-entities.

Chapter 3: This chapter is concerned with the ‘metaphysical argument’. I explain that it hinges on Berkeley’s rejection of absolute space but that Berkeley’s and Kant’s rejection of that notion are so similar that the argument fails.

Chapter 4: In this chapter I reconsider Kant’s notion of a pure intuition in order to compare that notion with what Berkeley says in his writings. I conclude that for Kant the pure intuition of space is a framework constituted by the capacity of the motion of the subject and the capacity for tactile experience.

Chapter 5: Finally, in the last chapter I argue that Berkeley’s conception of space and geometrical knowledge in the *NTV* and *Principles* should be understood as implying that he also has a conception of a pure intuition though he never fully articulated it in that way.

Note on sources and abbreviations:

Berkeley: All references from Berkeley's works, except those from *De Mou*, are from *The Works of George Berkeley Bishop of Cloyne* (Kraus-Thompson Organisation Limited, Nemdeln, Lichtenstein: 1979) ed. A.A.Luce & T.E.Jessop, and this is referred to as *Works*. References from *De Motu* are from *De Motu and the Analyst: A Modern Edition with Introductions and Commentary* (Kluwer Academic Publishers, Dordrecht/Boston/London: 1992) ed. & tr. D.M.Jesseph. References to all works except the *Three Dialogues* are given by § of the work. References to the *Three Dialogues* are indicated by dialogue (D1, D2 or D3), page number in *Works*. I use the following abbreviations for Berkeley's works:

Commentaries – Philosophical Commentaries, Works, vol. 1

NTV - An Essay Towards a New Theory of Vision, Works, vol. 1

Principles - A Treatise Concerning the Principles of Human Knowledge, Works, vol. 2

Siris - Siris: A chain of Philosophical Reflexions and Inquiries, Works, vol. 5

TVV - The Theory of Vision Vindicated and Explained, Works, vol. 1

Three Dialogues - Three Dialogues between Hylas and Philonous, Works, vol. 2

Kant: All references from Kant's works refers to the pagination of the standard German edition of his works, *Kant's gesammelte Schriften*, ed. Royal Prussian (later German) Academy of Sciences (Berlin, George Reimer, later Walter deGruyter & Co.: 1900-) and are reproduced as they appear in *The Cambridge edition of the works of Immanuel Kant*, general editors P. Guyer and A.W. Wood. They are indicated as follows: abbreviation of the title of the work, followed by volume and page. For the *Critique of Pure Reason* the references are to the pagination of the original edition indicated by A for the 1781 edition and B for the 1787 edition. I use the following abbreviations for Kant's works:

Anthropology - Anthropology from a Pragmatic Point of View

Directions - Concerning the Ultimate Ground of the Differentiation of Directions in Space

Dissertation - On the Form and Principles of the Sensible and the Intelligible World

Elucidation - A New Elucidation of the First Principles of Metaphysical Cognition

First Critique - Critique of Pure Reason

Inquiry - Inquiry Concerning the Distinctness of the Principles of Natural Theology and Morality

Metaphysical Foundations - Metaphysical Foundations of Natural Science

Physical Monadology - The Employment in Natural Philosophy of Metaphysics Combined with Geometry, of which Sample 1 Contains the Physical Monadology

Prolegomena - Prolegomena to any Further Metaphysics that will be able to come Forward as a Science

Other abbreviations:

Controversy – The Controversy between Leibniz and Clarke, Leibniz, G.W & Clarke, S

Elements - The Thirteen Books of Euclid's Elements, Euclid

Essay – An Essay Concerning Human Understanding, Locke, J

Enquiry – Enquiries Concerning Human Understanding and Concerning the Principles of Morals, Hume, D

Principia - The Principia: Mathematical principles of natural philosophy Newton, I

Treatise - A Treatise of Human Nature, Hume, D

Introduction

There are scholars for whom the history of philosophy (ancient as well as modern) is itself their philosophy; the present prolegomena have not been written for them. They must wait until those who endeavour to draw from the wellsprings of reason itself have finished their business, and then it will be their turn to bring news of these events to the world. Otherwise, in their opinion nothing can be said that has not already been said before; and in fact this opinion can stand for all time as an infallible prediction, for since the human understanding has wandered over countless subjects in various ways through many centuries, it can hardly fail that for anything new something old should be found that has some similarity to it. (Kant, Prolegomena, Preface, 4: 255)

There is a peculiarity about geometry that has been a source of wonder since ancient times. We can represent the figures of that science through diagrams, yet the representations will always be imperfect and therefore the knowledge acquired by means of these representations is not about the figures we draw and observe. The knowledge concerns a set of objects that we can only vaguely conceive, that we can define but that we can never experience. The science of these objects and their relations have seemed like a pathway to an acquaintance with a different world.¹ How are we to explain this connection between our means of demonstrating geometrical truth and the objects that we get to know through this activity? The answers given to this question by Kant and Berkeley, respectively, are the topic of this thesis.

Both Kant and Berkeley have been labelled idealist, certainly Kant labelled both himself and Berkeley as idealists, though Kant is of a ‘transcendental’ and ‘critical’ kind whereas Berkeley’s idealism is said to be ‘dogmatic’ and ‘mystical’. This ideality specifically concerns space. To state that space is not something in itself gives rise to a number of pressing questions. If space is not real, then what is the status of our outer experience and what is the true nature of ourselves? Is outer experience merely as in a dream and is our bodily form merely illusory? Is it the case that in order to explain the relation between our experience of geometrical figures and the universal truths derived from them an appeal to

¹ For example, Plato’s theory of recollection (e.g., Meno, 82ff) and the theory of a ‘world of universals’ (Russell, 1992, vol.6, “The Philosophical Importance of Mathematical Logic”) both express (among other things) this wonderment.

mystical or spiritual capacities is necessary? Do these capacities belong to an unimaginable disembodied subject that dreams up the merely ideal space and the relations within it?

In this thesis I will argue that for both Kant and Berkeley nothing is further from the truth. They both took our experience of things in space to be real and veridical. Further, and what I take to be the most striking conclusion from this thesis, is that in fact these two ‘idealists’ took the human body to play a constitutive role as a necessary condition for outer experience and our geometrical knowledge.

Accordingly, I argue for a close affinity between Kant’s and Berkeley’s conception of space.² I have brought Kant closer to Berkeley than is usual by arguing that the Kantian subject that ‘generates’ the pure intuition of space and that carries out geometrical constructions in this pure intuition is necessarily an embodied subject (see Chapter 4). I have also brought Berkeley closer to Kant than is usually done by arguing that the aspects of being embodied that Berkeley claims are necessary for any geometrical knowledge and for outer experience are transcendental conditions for embodiment as opposed to merely empirical conditions (see Chapter 5). By moving both thinkers towards each other simultaneously, so to speak, I believe that neither do I turn Kant into an ‘empiricist’ nor do I turn Berkeley into a ‘rationalist’. Rather I conclude that with regard to outer experience and geometrical knowledge they are both better described as transcendental philosophers.

I want to take the opportunity in this introduction to raise two issues that show the degree of complexity involved in the assessment of the two thinkers and which makes a comparison of them a stimulating, difficult and sometimes frustrating task. They are issues that I believe must be taken into account by any comparison of Kant’s and Berkeley’s philosophy.

(1) The first concern that I want to communicate is that there are some historical-interpretive difficulties that are peculiar to the comparison of Berkeley’s and Kant’s philosophies. Of course, there are some natural difficulties in comparing the two thinkers. They wrote (mostly) in different languages, they lived in different countries and cultures and they used quite different vocabularies. However, some obstacles for understanding their relation are unusual. Firstly, they lived in a time when political and religious pressure of a quite staggering degree was levelled on the most abstract of inquiries. Berkeley was, as Bracken (1965) has shown, caught up in a political battle on the continent. This had the effect that Berkeley’s views were distorted in reviews, encyclopaedias and other accounts of his

² Of course, there might be issues on which they disagree. Though it is not at all touched upon in this thesis, our knowledge of God seems to be one such area of disagreement.

philosophy. This amount of distortion made it difficult for Kant to engage with Berkeley himself. Secondly, the amount of Berkeleyan first hand material available to a non English speaker was extremely scarce until 1782. This again made it difficult for Kant to distinguish the distorted view of Berkeley that was circulated from the view Berkeley wants to express in his writing. One must therefore always have the question in mind of whether Kant is attacking Berkeley or one of the many images of Berkeley propagated at the time. Chapter 1 (which is largely historical) and to some extent Chapter 2 are aimed specifically at this issue.

(2) The second concern relates to the fact that Kant's and Berkeley's philosophical ambitions are quite different. Put simply, Kant is intent on constructing a complete philosophical system whereas Berkeley is more concerned with correcting what he takes to be philosophical mistakes on particular issues. This requires that Kant's full statement on the nature of space is compared with scattered remarks in the form of criticisms of the conception of absolute space, of the use of abstract ideas in geometry and in the psychology of vision. Fortunately the situation is helped by the fact that Berkeley does give a positive answer to the question of how to re-appropriate Newtonian science in the light of his rejection of absolute space that can be compared to Kant's account of the same (see Chapter 3); and Berkeley also explains how he understands the possibility of geometrical knowledge and our outer experience. The comparison with Kant on this issue makes up the main part of the thesis, Chapters 4 and 5, for which the rest is essentially a preparation.

Chapter 1: Background to Kant's dispute with Berkeley

Berkeley was greatly misunderstood and misrepresented in the mid and late 1700s. Kant's early engagement with Berkeley was informed by this, and if that was all Kant would have to say about Berkeley then Kant's objections would amount to little more than a historical curiosity. However, Kant was a powerful and independent thinker and developed his views as more firsthand information about Berkeley's philosophy became available. The result is his criticism of Berkeley, in particular regarding the Irishman's conception of space found in the *Prolegomena* and the B-edition of the *First Critique*. These later arguments bring out some fundamental issues concerning the respective thinkers view on space, idealism and the cognitive constitution of the human being.

The aim of this chapter is, first, to trace and identify the main historical factors that contributed to the identification of Berkeley's and Kant's form of idealism. The peculiar reaction to Berkeley's philosophy in the 18th century in general is well documented by Bracken (1965), Berman (1989) and McCracken & Tipton (2000). What has not been sufficiently considered, however, is the influence that this early reception had both on Kant's understanding of Berkeley and on the early criticism of Kant's own philosophy that led Kant to renounce any affinity between his and Berkeley's idealism. In the first section of this chapter I aim to fill this gap.

In particular I will first consider the reception of Berkeley's views on the continent that are connected with Wolff's classification of him as an idealist or solipsist. Then I will treat the reception of Berkeley's views in Britain, specifically Hume and the Scottish 'common sense' philosophers such as Reid's and Beattie's account of him as a sceptic. The aim of this section is firstly to show how Berkeley was understood by philosophers who influenced Kant, such as Hume and Wolff; secondly, to consider the connection made between Kant and Berkeley by Kant's early critics, in particular by Feder in the infamous review in his journal, which forced Kant to publicly refute Berkeley in the *Prolegomena* and the second edition of the *First Critique*. In the second section I will consider the development of Kant's view of Berkeley, from the time he mentions Berkeley in the early 1760s to the more nuanced conception as it emerges in the 1770s and 80s.

1) The perception of Berkeley's philosophy in the 1700s

Berkeley never classified his philosophy as 'idealism', neither did he claim to deny the existence of the external world or claim that experience was a dream, nor did he align himself to 'solipsism', 'egoism', 'scepticism' or 'atheism'. Indeed, in both his two major philosophical works, the *Principles* and the *Dialogues*, Berkeley explicitly states that his purpose is to refute scepticism and atheism.¹ Nonetheless these were all common charges put against his system from the time of the first review of his *Principles* until long after Kant's criticism.

To see why this attitude was taken towards Berkeley it is important to be aware that by the publication of his major philosophical works he could not hope to win a philosophical popularity contest. Rather Berkeley was alienated by all sides, as Bracken puts it,

The Newtonians were probably not pleased by the attacks on the mathematicians (cf. Pr § 101 ff). His stated intent to attack scepticism could hardly be expected to win him friends among Baylean Pyrrhonists. On the other hand, those who were fighting Bayle and his camp, found Berkeley's resolution of scepticism so incredible that they feared Trojan Horse tactics. Worst of all, the Jesuits found in him the *reductio ad absurdum* of Malbranchianism – or rather, they so made him out, and used him repeatedly as a weapon in their bitter struggles with Malebranche and his followers. (1965: 6)

A) The reception on the continent

From the very first reviews of the *Principles*, in the *Journal des Sçavans*, (1711: 322) and the *Mémoires pour l'Histoire des Sciences & des Beaus Arts* (*Memoires de Trévoux* from here on) (May, 1713: 921), Berkeley is said to deny the existence of bodies.² The same is said in a number of early reviews of the *Three Dialogues*, e.g., in *Journal Littéraire* (1713: 149) *Mémoires de Trévoux* (December, 1713: 2198); and in Pfaff's short work, *De Egoismo* (1722), which is also the first time Berkeley is labelled 'idealist'.³ To the modern reader this

¹ See §1-4 of the Introduction to the *Principles* and the Preface to the *Three Dialogues* and the sub-title of the same work, which reads, "The design of which is plainly to demonstrate the perfection of human knowledge, the incorporeal nature of the soul, and the immediate providence of the Deity: in opposition to Sceptics and Atheists. Also to open a method for rendering the Sciences more easy, useful and compendious", which was changed simply to "*In opposition to Sceptics and Atheists*" in the third edition (1734).

² See Bracken (1965: 7)

³ See Bracken (1965: 20)

is peculiar since we are accustomed to the view of Berkeley first fully articulated by Jessop (1952) and Luce (1963) and more recently developed by e.g., Pappas (2000: Ch. 6&7).

According to the contemporary interpretation of Berkeley's philosophy he affirms the existence of physical objects (what he, in accordance with the terminology current in his time, calls 'bodies') and claims that we have immediate knowledge of them through our senses. It has become recognised that it is crucial to Berkeley's philosophy that he distinguishes between the concept of material substance and the concept of body. Berkeley denies the existence of "*matter or corporeal substance*" (*Principles*, §9). This is the concept only of an unperceivable and unknowable substrate of appearances that would not be thought about by the common man or a philosopher of nature but only by philosophers of a particular metaphysical persuasion. However, he does not deny the existence of bodies. We come into immediate contact with bodies by the senses, in particular by touching or seeing something. Bodies are sensible things whose "being is to be perceived or known" (*Principles*, §6).⁴ Berkeley never said he denied the existence of bodies or anything sensible, rather he emphasises time and again that in his system sensible things, and therefore bodies are real.

[...] by the principles premised, we are not deprived of any one thing in Nature. Whatever we see, feel, hear or any wise conceive or understand, remains as secure as ever, and is as real as ever. (*Principles*, §34)

I do not argue against the existence of any one thing that we can apprehend, either by sense or reflexion. (*Principles*, §35)

[...] those immediate objects of perception, which according to you, are only appearances of things, I take to be the real things themselves. (*Three Dialogues*, D3: 244)

[...] if by *material substance* is meant only sensible body, that which is seen and felt (and the unphilosophical part of the world mean no more) then I am more certain of matter's existence than you [Hylas], or any other philosopher, pretend to be. (*Three Dialogues*, D3: 237)

One can argue that Berkeley is somehow inconsistent and that his stated position, that bodies are essentially mind dependent, is untenable. But that is quite different from claiming that Berkeley holds that bodies did not exist, for he repeatedly states that they do exist, and

⁴ I will consider the nature of immaterialism and idealism in more detail in Chapter 3.1 and Berkeley's theory of experience in Chapter 5.

further, that we have immediate access to them through the senses. Why, then, was this misinformation so common? One of the reasons for the widespread misrepresentation of Berkeley's view lies in the fact that many writers at the time relied on second hand accounts. For example, Pfaff does not cite any of Berkeley's texts, but only refers to the reviews in the journals mentioned above. Many of these second hand accounts were written with little regard to the actual text and misquotations were common, even in authoritative philosophical encyclopaedias.⁵

The most influential and, as Bracken noted above, also most partisan account of Berkeley's philosophy came from the Jesuits. This 'Jesuit attack' came chiefly from Father Tournemine and the other editors and contributors of *Memoires de Trévoux* and Tournemine's Preface to Archbishop Fénelon's popular *Oeuvres Philosophiques*.⁶ Here Berkeley's writings were used in the philosophical and theological disputes that the Jesuits had with Malebranche and his followers in the early and middle 1700s. Tournemine and his associates took Berkeley's philosophy, as expounded in the *Principles* and the *Three Dialogues*, as being consistent with Malebranche's views, but being absurd. In this way it was thought that Malebranche's position could be shown to have absurd consequences.⁷

This is reflected in a highly influential part of the review of the *Principles* in the May edition of the *Memoires de Trévoux* from 1713,

One of us knew in Paris a Malebranchist who goes further than Mr. Berkeley, he has maintained, very seriously, in a long dispute, that it is very probable that he may be the only created being who exists, and that not only are there no bodies, but there is no other created spirit besides his

⁵ E.g., Chambers' (1728) *Cyclopaedia, or an Universal Dictionary of the Arts and Sciences*, entry 'Body' and Diderot, et al., *Encyclopédie, ou Dictionnaire Raisoné des Sciences, des Arts et des Métiers*, entry 'Corps'. See Bracken (1965: 52-8)

⁶ It was reprinted almost annually; see Bracken (1965: 29).

⁷ While Bracken (1965: 21) sees this identification as "Jesuit tactics", I do not think there are sufficient grounds for such a charge of wilful misrepresentation. The association of Berkeley and Malebranche suggested itself to most readers of the *Principles* at the time. For example, almost three years before the review in the *Memoires de Trévoux*, Precival, in a letter to Berkeley from October 30, 1710, reports that Samuel Clarke (the Dr. Clarke from the *Controversy*) and William Whiston (Newton's successor at Cambridge) had read the *Principles* and "wished you had employed your thoughts less on metaphysics, ranking you with Farther Malebranche, Norris and another whose name I have forgot". Berkeley replied on November, 27 that "I think the notions I embrace are not in the least coincident with, or agreeing with, theirs, but indeed plainly inconsistent with them in the main points, insomuch that I know few writers whom I take myself at bottom to differ more from than them." Quoted in McCracken & Tipton (2000: 164-5). Clarke's and Whiston's view on Berkeley is therefore close to the Jesuit view, but it is hard to see how the same political and religious motivation could underlie their association of Berkeley with Malebranche.

own; it is for those who believe that *we see only an intelligible world* [i.e., Malebranchists such as Berkeley] to prove that their principles are not being carried too far. (922)⁸

Here Berkeley's position is presented as an intermediate step between Malebranche and a solipsist Malebranchist in Paris. The solipsistic view is said to follow from the belief that "*we see only an intelligible world*", a belief that in turn is a consequence of the denial of the existence of bodies. The text suggests that from Berkeley's alleged denial of bodies it is therefore only a small and logically consistent step also to deny the existence of any other created spirits.⁹

Similarly, in the Preface to the widely read *Oeuvres Philosophiques* from 1731, in the section "The Atheism of the Immaterialists refuted", Tournemine speaks of a philosophy directly opposed to Spinoza of which Berkeley is the only person mentioned by name, but where there "is no question but that Malebranche is the real target" (Bracken, 1965: 26). Again, Berkeley's philosophy is linked with an alleged solipsist.

One of these philosophers maintained to me very seriously that it might be the case that there was no one in the world but himself, and that he was the only being. Thus the more relations there are, the more duties. In this system our knowledge has no solidity, we deal only with feigned spectres, fantastic pictures without truth, without objects (365).¹⁰

This view of Berkeley's philosophy is close to that of the Paris solipsist was enforced in Germany by Christian Wolff. In the 1719 preface to *Rational Thoughts on God, the World and the Soul of Man, and on All Things Whatsoever* Christian Wolff speaks of a sect of egoists in Paris and labels them "idealists" (§944), however, no mention is made of Berkeley. But in the later *Rational Psychology* (1734) he writes,

Idealists are those who allow only an ideal existence of bodies in our minds, and thus deny the real existence of the world and of bodies. Among the idealists George Berkeley [...] has fairly recently declared himself in *Three Dialogues*. (§36)¹¹

⁸ Quoted in Bracken (1965: 18)

⁹ In a review of the French edition of the *Three Dialogues* in *Memoires de Trévoux* (1750: 676-7) the Jesuit attack comes full circle and Berkeley is now said to have communicated to M. Coste, the translator of Locke's *Essay concerning human understanding*, that the *Three Dialogues* were only written in order to show the absurd consequences that follow from Malebranche's philosophy.

¹⁰ Quoted in Bracken, 1965: 27

¹¹ Quoted in Bracken, 1965: 19

Kant was clearly influenced by these reviews. At the time of his lectures in metaphysics from the 1760s there were still few translations of Berkeley's works available, and no accurate German translation of any of Berkeley's work.¹² In these lectures Kant places Berkeley in the idealist/solipsist camp. Over time Kant changes his view, and explicitly disassociates Berkeley with the solipsist view. This strongly suggests that Kant read Berkeley's work in more detail in the early 1780s.

B) *The reception in Britain*

Kant acknowledged to have read three of Berkeley's British critics, namely Reid, Beattie and Hume (*Prolegomena*, 4: 258). Kant did not hold Reid and Beattie in high regard. He admitted that he could not, "without feeling a certain pain" (*Prolegomena*, 4: 258) read Beattie's and Reid's (as well as Oswald's and Priestley's) criticism of Hume.¹³ While Kant distrusted their exposition of Hume's philosophy and therefore was unlikely to be influenced by the latter's criticism of Berkeley, he did take Hume's philosophy very seriously. For this reason it is significant to consider Hume's brief pronouncements on Berkeley.

Hume refers to Berkeley in a footnote in both the *Treatise* (1739-40) and the *Enquiry* (1748). In the former he commends Berkeley on his argument against abstract general ideas, which he claims to be "one of the greatest discoveries that has been made of late in the republic of letter". (*Treatise*: 17) In the *Enquiry* Hume again comments on Berkeley's attack

¹² Here is a list of publication of Berkeley's works prior to 1787 in French, Latin and German. IT is extracted from Jessopp (1973) and Keynes (1976). As far as I know it is exhaustive. Berkeley's writings in German: *Extracts from Siris with additions* [on the medicinal properties of tar-water only], Amsterdam and Leipzig: 1745, tr. D. W. Linden; *Three Dialogues*, Rostock: 1756, tr. J. C. Eschenbach; *Philosophische Werke: Erster Theil* [*Three Dialogues*], Leipzig, 1781, tr. Unknown. Berkeley's writings in French: *Alciphron with Theory of vision*, La Haye: 1734, tr. B. de Joncourt; *Siris with letters to Prior and Mr. L.*, Amsterdam: 1745, tr. D. R. Bouiller; *Three dialogues*, Amsterdam: 1750, tr. J. P. de Gua de Malves. Berkeley's writings in Latin: *De Motu*, London: 1721

¹³ Kant singles out Beattie for more insults, by claiming that he has no critical reason (*Prolegomena*, 4: 259) and possibly also by parodying Beattie's arguments in that section (see Piper, 1978-9: 176-7). This shows not only a profound dislike of Beattie, but also a thorough acquaintance with his work *An Essay on the Nature and Immutability of Truth in Opposition to Sophistry and Scepticism*. As Kuehn, 1983, has shown, this was a work which, like Reid's *Inquiry into the human mind* and other works by the Scottish 'common sense' philosophers, was frequently debated and hugely influential in Germany in the late 1760s, 70s and early 80s. In that essay Beattie quoted extensively from Hume's *Treatise*, which was not translated into German at the time, and so provided Kant with some firsthand knowledge of that work; but did not quote any of Berkeley's works. Given the lack of citation in Beattie's work and Kant's general disdain of him, it is reasonable to suppose with Miller (1973: 320-1) that Kant was not greatly influenced by Beattie's criticism of Berkeley.

on the notion of abstract general ideas (he paraphrases the argument in *Principles*, Introduction, §13), but the tone is different. He says,

Let any man try to conceive a triangle in general, which is neither *Isosceles* nor *Scalenum*, nor has any particular length or proportion of sides; and he will soon perceive the absurdities of all the scholastic notions with regard to abstraction and general ideas*. (Hume, *Enquiry*: 122)

* This argument is drawn from Dr. Berkeley; and indeed most of the writings of that very ingenious author forms the best lessons of scepticism, which are to be found either among the ancient or modern philosophers, Bayle not excepted. He professes, however, in his title-page (and undoubtedly with great truth) to have composed his book against the sceptics as well as against atheists and free-thinkers. But that all his arguments, though otherwise intended are, in reality, merely sceptical, follows from this, *that they admit of no answer and produce no conviction*. Their only effect is to cause that momentary amazement and irresolution and confusion, which is the result of scepticism. (Hume, *Enquiry*: 122n)

In his earlier work Hume praises Berkeley's argument against abstract ideas but now he says that this argument is only good for a momentary amazement, irresolution and confusion that only lead to scepticism. (That is a gross oversimplification of this Berkeleyan argument, as we will see in Chapter 5 when considering Berkeley's theory of geometry put forward in the *Introduction to the Principles*.) There was no German translation of the *Treatise* in Kant's time, but the *Enquiry* was translated into German in 1755. So for Kant, Hume understood Berkeley as someone who unintentionally is a champion of scepticism. If Hume saw himself as a sceptic, and certainly many have taken him to do that, this would be high praise indeed. But it is not likely to have given Kant a positive impression of Berkeley, as we will see in Section 2 when the development of Kant's view on scepticism and idealism will be examined.

Nevertheless, a famous review of the first edition of the *First Critique* forced Kant to pronounce himself publicly and at some length on Berkeley's philosophy. The importance of this review, the so-called *Göttingen Review*, can hardly be overstated here.¹⁴ For it is there that Kant's philosophy is likened to Berkeley's for the first time. Kant did not like it at all and made additions to the *Prolegomena* where he insults the reviewer and goes to great pains to distinguish his view from Berkeley. In Chapter 2.2 I will consider Kant's response in the

¹⁴ An anonymous (J. Feder and C. Garve) review of Kant's *First Critique*, published in the journal *Göttingische gelehrte Anzeigen*, January 19, 1782.

Prolegomena in some detail. But before doing so I want to consider the following question: Why did the comparison with Berkeley upset Kant so much?

C) *The identification of Kant's and Berkeley's idealism: The Göttingen Review*

The review was originally meant to be written by Christian Garve, but he was unable to shorten his notes on Kant's difficult work sufficiently for the format of the review. So the editor of the journal, Johann Feder, significantly edited Garve's text before it was published. It is Feder who is responsible for the explicit comparison of Berkeley's and Kant's philosophies in the review. This is of particular interest here because Feder was a follower of the Scottish Berkeley critics, in particular Reid.¹⁵ He was fully aware of Berkeley's notoriety and rejected the alleged 'idealism' of that philosophy. Further, he saw Kant's idealism as similar to Berkeley's and subjected Kant's philosophy to the same kind of criticism that Reid had earlier put against Berkeley. This is clear when we compare a section of Reid's criticism of Berkeley with a section from that later work by Feder, where he again criticises Kant. Feder and Reid, respectively, say,

The claim that bodies are represented in us, that space is something in us, that outer sense is a property of our mind, and so on, are these not confusions of language? Where would it lead if it were continued in more determinate applications? To the claim that Göttingen is something in me, a mere representation or modification of myself, that the wall on which I am taking a walk is in me, that the view over meadows and fields to the mountains, and the sun and moon [are in me] -. (Feder, *On space and causality: an examination of the Kantian philosophy*, (Göttingen, Dietrich: 1787: 115-6) quoted in Sassen (2000: 163-4)

Thus, the wisdom of *philosophy* [Berkeley's 'idealism'] is set in opposition to the *common sense* of mankind. The first pretends to demonstrate *a priori* that there can be no such things as a material world; that sun, moon, stars, and earth, vegetables and animal bodies, are, and can be nothing else but sensations in the mind, or images of those sensations in the memory and imagination; that, like pain and joy, they can have no existence when they are not thought of. (Reid, *Inquiry*: 76-7)

¹⁵ In his *Logik und Metaphysik nebst der Philosophischen Geschichte im Grundrisse* (2d.ed., Göttingen & Gothe: 1770: 256) he comments positively on Reid's *Inquiry into the Human Mind* and in a review of Reid's *Essays on the Intellectual Powers of Man* in *Philosophische Bibliothek* (1788: 43) Feder claims that the work under consideration is "the most important foreign product of speculative philosophy" of recent times. (See Kuehn, 1983: 486)

Here Feder comes close to paraphrasing Reid. Both Kant and Berkeley are said to believe that there is no world outside myself and that all things I experience, such as the sun and the moon,¹⁶ are ‘in me’. This is said to go against our normal understanding of things, in the first instance against the common usage of language and in the second instance against the “*common sense* of mankind”.

Feder may have had the intention of presenting the same criticism against Kant as his predecessors had put against Berkeley. But in the *Göttingen Review* Berkeley’s name is only mentioned once and only in passing, in view of this it is believed that “the comparison is far from thorough going” (Sassen, 2000: 7). But consider the following passage from the paragraph from the *Göttingen review* where Berkeley is mentioned by name.

The author’s system rests on roughly the following main propositions. All our cognition springs from certain modifications of ourselves, which we call sensations. We have no idea where they occur or what is causing them. If there is an actual thing in which the representations inhere, or if they are created by actual things that exist independently of us, we still do not know the least predicate of either the one or the other. Nonetheless, we assume there are objects: we speak of ourselves, we speak of bodies as actual things, we believe that we know both, and we make judgements about them [...] Thus we take intuitions of outer sense as things and events outside of us because they occur beside each other in a certain space and follow each other in a certain time. That is actual for us which we represent to ourselves as in some place and at some time. Space and time themselves are not something actual outside us. Nor are they relations or abstract concepts. Rather they are subjective laws of our representative capacity, forms of sensations, and subjective conditions of sensible intuition. One basic pillar of the Kantian system rests on these concepts of sensation as mere modifications of ourselves (on which **Berkeley**, too, principally builds his idealism), and of space and time. (40-1)

By first stating that “all our cognitions springs from certain modifications of ourselves” and then that “we assume [in Kant’s theory] that there are objects: we speak of ourselves, we speak of bodies as actual things, we believe that we know both” the review already suggests that for Kant things are not outside us at all, i.e., that bodies do not really exist. This whole lengthy section is in this way an argument against Kant by identification with Berkeley’s

¹⁶ I think it is very probable that Reid and Feder again want to suggest a connection between Malebranche on the one hand and Berkeley and Kant, respectively, on the other. The moon and the sun are two of Malebranche’s favourite examples of things that are not as they appear. (See *Search for Truth*, Book I, Ch. 7, §7 & Ch. 12, §2)

alleged denial of an external world. The subtle reference to Berkeley at the end merely cements this suggestion. Given Berkeley's reputation, the popularity of the Scottish 'common sense' philosophers in Germany at the time, in particular with regard to their various refutations of Berkeley;¹⁷ and given the affinities of the reviewer (it was an anonymous review but it would not be difficult for Kant to guess that the champion of Reid and editor of the journal were involved). Large sections of the review read as an implicit identification of Berkeley and Kant. The review is, as Kant clearly saw, the transference of well over a half century of ruthless criticism and alleged refutations of Berkeley onto Kant's new philosophy. So Kant's reaction to it was natural. Having noted this, it is now time to turn to Kant's arguments against Berkeley.

2) Kant's early engagement with Berkeley

In this section we will first see that Kant's view of Berkeley in the 1760s reflects the general perception of Berkeley on the continent. In the 1770s Kant refines his view of Berkeley somewhat, and here is one reason why the development of Kant's criticism of Berkeley is so intriguing. After it had been suggested that Kant's philosophy has strong affinities with Berkeley's, Kant develops an interesting and original criticism of Berkeley that is closer to the letter of Berkeley's philosophy. It is a criticism that distances Kant's approach from the misinformation spread both on the Continent and in Britain in the 1700s and which has had a decisive and lasting influence on scholarship on Berkeley's philosophy of space up until the present.¹⁸

In his arguments against Berkeley, Kant does not refer to particular passages of Berkeley's works. Rather, following Wolff, Kant sees Berkeley as a representative of a certain philosophical position: 'dogmatic idealism'. For this reason it is not clear to what extent the assessment of Kant's criticism of Berkeley depends on Kant's firsthand knowledge of Berkeley's works. Nonetheless, in this section I will try to establish what Kant believed or knew of Berkeley and at what time he did so. As we will see in Section 2B and later in Chapter 2.2A, in his critical period Kant often refers to different forms of idealism, even different kinds of dogmatic idealism, without mentioning any particular philosopher. So in

¹⁷ For example, Moses Mendelssohn, who Kant held in high regard as a philosopher, was enthusiastic about Beattie's and Reid's criticism of Berkeley. See, Kuehn (1983: 483-4)

¹⁸ In Chapter 3.1 I will consider contemporary views of Berkeley's theory of space. I will argue that the dominant view of Berkeley's philosophy of science, which I there term 'Lucean', can be seen as a version of Kant's criticisms of Berkeley.

order to identify when in these cases Kant refers to Berkeley and when he does not, it is necessary to have an idea of what kind of position Kant could have attributed to Berkeley and how his conception of Berkeley evolved.

A) The Metaphysik Herder: Idealism is irrefutable but reprehensible

As Matthey (1983: 164-6) has noted, given what Kant says in the *Metaphysik Herder* (the notes taken by Herder from Kant's metaphysics lectures of 1762-4), it is probable that Kant at this time had studied the *Three Dialogues* and was aware of the *Siris* since he refers to "the treatise *On the Use of Tarwater for Our Body*" (*Metaphysik Herder*, 28:42).¹⁹ A French translation of the complete *Siris* appeared in 1745, and there was also a German translation of the first part of the book.²⁰ There is a translation of the *Three Dialogues* in German from 1756 included in *Samlung der vornehmsten Schriftsteller, die die Wirklichkeit ihres eigenen Körpers und der ganzen Körperwelt leugnen*. The translator and author of the hostile appendix, J. C. Eschenbach, did not translate from the English original but from the French translation. Matthey (1983) reports that in Eschenbach's book there are some consistent and grave errors of translation that seriously misrepresents Berkeley's view, but which were common at the time, as we have seen in the previous section. Most notably "matter" is on occasion translated as "Materie oder das Körperliche", i.e., 'matter' or 'material substance' is identified with 'body'. In the *Three Dialogues* Berkeley claims that there is a contradiction in the concept of *material substance* and that this is the main reason for why he takes it not to exist (2: 224-5, 3: 332-3). But the 1756 translation present Berkeley as saying that the concept of *body* is contradictory and that for this reason bodies do not exist.

Since Kant's characterisation of Berkeley is consistent with the mistranslations in the 1756 edition of the *Three Dialogues*, and more tellingly, since Kant used examples of Berkeley's 'idealist' arguments that in their details are very similar to those used by Berkeley in the *Three Dialogues*, it is probable that Kant had studied this work in some depth and so

¹⁹ Kant's reference to the work in this way is explained by the fact that in both the French and the German translations of *Siris* Berkeley's title (i.e., "Siris: A chain of philosophical reflections [...]") is substituted for "Recherches sur les Vertus de l'Eau de Goudron, Où l'on a joint des REFLEXIONS PHILOSOPHIQUES sur divers autres subjects importants." in the French translation and "Gründliche Historische Nachricht vom Theer-Wasser [...]" in the German translation. The translator of the French version motivates the decision by saying that the original title, and one must assume the word 'Siris' in particular, was "misleading and too obscure for the generality of his readers." Keynes (1976: 148)

²⁰ I.e., the discussion on the allegedly beneficial properties of tar water.

that his first attempt to understand Berkeley's immaterialism was based on this misconstrual of the work.

In these lectures Kant ascribes to Berkeley the view that there is only a spiritual world (*Metaphysik Herder*, 28: 42) and that bodies are only appearances of bodies in my soul. First, Kant states that Berkeley argues that colours are not in bodies, but rather are “merely in the refractions of the light rays, as the prism teaches” (*Metaphysik Herder*, 28: 42) In the *Three Dialogues*, Berkeley has Philonous talk of “the experiment of the prism, which separating the heterogeneous rays of light, alters the colour of any object” (*Three Dialogues*, D2: 186).²¹ Second, Kant (again, according to Herder's notes) suggests that according to Berkeley's idealism, real life is “[a]s in a dream” (*Metaphysik Herder*, 28: 42). Kant is aware of Berkeley's two criteria for distinguishing between a dream and being awake, vivacity and coherence (*Three Dialogues*, D3: 235). But, in the notes, both Berkeley and Kant are presented as thinking that these criteria cannot afford us with a sufficiently forceful distinction between the state of dreaming and being awake.²² Vivacity, according to the lecture notes, is not a characteristic particular to sensation when one is awake; and coherence does not point to some essential difference between reality and dream. In this sense we are always “as in a dream”. With regard to vivacity Kant says “one imagines things which nevertheless are not, far more lively than [when one is] awake: since an affection concerning absurdities is greater.” (*Metaphysik Herder*, 28: 42) With regard to coherence he says “were dreams not in mutual agreement, who would not hold them for occurring things?” (*Metaphysik Herder*, 28: 42-3)

So in 1762-4 Kant held that to disprove Berkeley one cannot use philosophical arguments. “The weapons of truth, wisdom, goodness of God, are too dull against idealism, and even serve it.” (*Metaphysik Herder*, 28: 43) Kant, it seems, concedes that Berkeley's philosophy is consistent with what we can know of things, that, as Hume says “they [Berkeley's arguments] admit of no answer”. Instead, this ‘dreaming idealism’ can only be tackled by appeal to “the assent of other human beings” (*Metaphysik Herder*, 28: 43) and by “one's own conviction” (*Metaphysik Herder*, 28: 43).

²¹ I take the presentation of this argument in the lecture to be the strongest indication that Kant read the 1756 translation of the *Three Dialogues*. While the coherence and vivacity criteria are mentioned by several reviewers, e.g., in the *Journal des Sçavans*, I have been unable to locate any mention of the prism argument in any commentary on Berkeley in German, Latin or French prior to the *Metaphysik Herder*.

²² I say this with some caution because it is often impossible to know if what is written down in these notes is supposed to be Berkeley's view, or consequences that Kant thinks follow from Berkeley's views, or Herder's own thought on the matter.

How are we to understand Kant's 'common sense' sounding argument against Berkeley? Herder's notes are fragmentary and a certain amount of interpretation is therefore necessary. Caranti (2003) has developed an analysis that I think is incorrect but that will be instructive to consider.

What Kant seems to have in mind is something like the immediate, unproblematic conviction about the existence of objects around us. This conviction, not triggered by philosophical sophistry, can be strengthened by "the assent of other human beings." In this way Kant's methodological orientation toward empiricism is applied to the problem of idealism. (Caranti, 2003: 290)

So Caranti suggests that Kant was inspired by his new found approach to metaphysical method published in the *Inquiry* (1764) at the time of the *Herder* lectures. This, Caranti argues, led him to hold the view that idealism could be refuted by appeal to what we can empirically observe. "The solution lies in relying on the conviction that the senses give us, even if we are aware that this conviction cannot be logically grounded. If we cannot refute idealism *logically*, Kant seems to think, we can still refute it *empirically*." (290) What is here considered to be 'empirical' is the "immediate, unproblematic conviction". However, as Caranti admits "it is easy to see that Kant's present position is highly paradoxical" (2003: 290), since Kant has just said that experience cannot refute the idealist. According to Caranti, therefore, Kant's approach to Berkeley's immaterialism is circular. For the idealist is characterised as someone who calls empirical evidence into question and says there are no criteria of truth in it, that it is no better than a dream. To make use of this in an attempt to refute the idealist will therefore be to beg the question.

I take Caranti's assessment of Kant's argument here to be incorrect. Even though the application of the new philosophical method (i.e., the "so to speak *a posteriori*" method)²³ is crucial for the development of some important discoveries for Kant around this time, it has nothing to do with his criticism of Berkeley. Further, to suggest that it does veils the continuity and development of Kant's understanding of Berkeley. Instead, I take the key to reading this section to be the fact that at this time Kant did not see a clear distinction between egoism and solipsism, i.e., the view that I am the only simple (and consequently, real) being (*Metaphysik Herder*, 28: 42), on the one hand, and idealism on the other hand. This would be consistent with the confusion of these labels at the time and the equally confused

²³ See *Directions* (2: 378)

identification of Berkeley as a champion of all three theories. Indeed, Kant states that “from him [the idealist] to egoism is only the smallest step” (*Metaphysik Herder*, 28: 43). Throughout the 1760’s and 1770’s Kant compares and assesses egoism, solipsism and idealism and it is the development of his thoughts on the relation of these concepts that drives the transformation of his attitude towards Berkeley, not his discovery of the “so to speak *a posteriori* method”.

How does Kant then understand the relation between egoism, solipsism and idealism in the *Metaphysik Herder*? With regard to egoism, it has catastrophic consequences for any moral and religious views. Since I am the only being there is no God and no moral subjects besides, possibly, me. “The more relations the more duties” as Tournemine succinctly puts it in his *Preface* to the *Oeuvres Philosophiques*. Idealism does not have this problem, since it affirms the existence of other beings. But according to Kant’s perception of idealism in these lectures, idealism is not based on distinctive arguments, but only on claims connected to the impossibility of refuting it, i.e., it is a kind of scepticism. Kant merely states that Berkeley “doubted whether there are any bodies at all” (*Metaphysik Herder*, 28: 42), not that he proved that there are no bodies. Idealism is conceived as a kind of scepticism that is only taken so far, but it could be taken to the uttermost extreme and then it is egoism. This is why Kant claims that idealism requires only “the smallest step” in order to collapse into egoism.

Egoism makes no assertions, but is really only a criticism of other positions. Therefore it cannot be refuted by philosophical arguments. Because idealism is taken to be equally groundless in this sense there are no tenets to attack. So Kant sees idealism merely as a general ‘attitude’ that is arrived at merely by choice, not a (dogmatic) philosophical position. Only a ‘non-logical’ appeal to “one’s own conviction” can refute idealism. Indeed, as Caranti (2003: 291-3) has shown, Kant clearly suggests that this is his preferred method for dealing with idealism at the time since two years later he goes on a polemic attack against idealism in his *Dreams*, where he ridicules the eccentric ‘spirit seer’ and adherent to Leibniz’ philosophy, Emanuel Swedenborg.

Accordingly, idealism can only be defeated by pointing to its negative moral and religious consequences, i.e., that it can easily descend into egoism. However, it will later become the central mark of Kant’s conception of dogmatic idealism that it holds that the concept of body is self-contradictory. As Kant often points out, this gives it a rational basis that firmly separates it from egoism. It is in this sense that for Kant Berkeley becomes a dogmatic denier of body rather than a sceptic.

B) The first edition of the First Critique and the Metaphysik Mrongovius: Berkeley as spiritual monadologist

The next time that Kant seems to argue against Berkeley is in the first edition of the *First Critique*. Here Kant did believe that he could refute the two strands of idealism that he refers to as ‘dogmatic’ and ‘sceptical’ idealism. In the *Fourth Paralogism* (A377) Kant explains that the former denies the existence of matter and the latter doubts its existence. It seems reasonable to conclude that Kant is referring to Berkeley when speaking of dogmatic idealism here because Berkeley famously denies the existence of matter, because Kant has already referred to Berkeley as an idealist in the *Metaphysik Herder* and because Kant characterises Berkeley as a “dogmatic idealist” in the second edition of the *First Critique* (B274).

However, it has been disputed on strong grounds whether Kant has Berkeley in mind at all here. Rather, it seems that Leibniz is the target. This view has primarily been developed by the research of G. Miller (1971) and G. J. Matthey (1983). They both claim that according to Kant it is Leibniz’ position, not Berkeley’s that entails something contradictory in the concept of matter (G. Miller, 1971: 301, G. J. Matthey, 1983: 166). I will argue that in the early 1780s Kant in fact understands both Leibniz and Berkeley as representative of the same view, “dogmatic idealism” and that Kant took this position to follow from Leibniz’ theory of substances.

Miller’s line of argument is based on Kant’s claim that dogmatic idealism is refuted in the *Second Antinomy*. The *Antinomies* are four sets of cosmological contradictions consisting of (seemingly) mutually exclusive and false thesis and antithesis. The thesis of the *Second Antinomy* reads “Every composite substance in the world consists of simple parts, and nothing exists anywhere except the simple or what is composed of simples.” (A434/B462) This position amounts to the denial of the existence of matter since if real things are simple then matter, which is essentially composite, is of a nature that is the very opposite of real things. Kant calls this the “dialectical principle of **monadology**.” (A442/B470) What Kant takes as dogmatic idealism in the first edition of the *First Critique* is accordingly Leibniz theory of monads, not Berkeley’s immaterialism.

As Matthey has shown, this hypothesis is supported by the *Metaphysik L₁*, lectures that Kant probably gave in the mid or late 1770s.²⁴ Here Kant distinguishes between egoism and

²⁴ These lectures are notoriously difficult to date and everything between 1773 and 1784 has been suggested. I would be much surprised if the lectures were given after the *Prolegomena* since (a) they do not mention Berkeley and (b) Kant does not use any of the arguments against Leibniz that he puts forward in the *First*

idealism of a problematic and dogmatic kind (*Metaphysik L₁*, 28: 206). The former is a mere method, by which the strength and certainty of beliefs are tested. The latter compose philosophical systems that Kant rejects. An example of dogmatic egoism is Spinoza's system, which Kant characterises as the belief that "there is only one being, and all others are modifications of the one being." (*Metaphysik L₁*, 28: 207) Kant further claims that dogmatic idealism is mystical and that it can also be called Platonic idealism (*Metaphysik L₁*, 28: 207). On this view bodies are appearances that something must underlie and so far this is in agreement with Kant's view. But the dogmatic idealist then makes the mistake of trying to determine what this something is. As the example of a dogmatic idealist Kant put forward Leibniz and his theory of what I will call 'spiritual monadology', as opposed to Kant's 'physical monadology' that he developed in the *Physical Monadology* and rejected in the *Second Antinomy of the First Critique* and in the *Metaphysical Foundations*.

Leibniz view is presented by Kant in the following way.

He [Leibniz] says: the world is an aggregate of monads, and their essential power is the power of representation <*vis repraesentativa*>. I cannot imagine any other power than the thinking power as essential in substances; all others are only modifications. Representation is thus the only one that I can cognize absolutely as an accident in substances. Accordingly, *Leibniz* thus says: all substances are monads or simple parts that have the power of representation <*vim repraesentativam*>, and appear among all phenomena <*phaenomenis*>. But it was already just said: all appearance is continuous, and no part of the appearance is simple, thus bodies do not consist of simple parts or monads. However, if they are thought through the understanding the substantial composites <*composita substantialia*> consist of simple parts. But whether all substances <*substantialia*> have representative power <*vim repraesentativam*> cannot be decided here. Thus the proposition that leads us to the mystical and intelligible worlds <*mundo mystico ... intelligibili*> is banned from philosophy. (*Metaphysik L₁*, 28: 207-8)

So Leibniz' view has two problems. Firstly, it takes conditions for noumena as conditions for phenomena and this leads him to hold that all things, also bodies, consist of simple parts. Kant explicates this position and claims to refute it in the *Second Antinomy*. But this problem is not exclusive to the idealist position. It also applies to Kant's physical monadology. Secondly, Leibniz claims that these simple beings have a representative power, this is Leibniz' distinctive 'spiritual monadologist' position. However, according to Kant this cannot even be

Critique, except an embryonic version of the *Second Antinomy*. Ameriks and Naragon dates the lecture "mid-1770" (1997: 17)

asserted of noumena because we know nothing whatsoever about their nature. It is this dogmatic assertion about what belongs to the nature of substances that makes Leibniz' position idealist. The means for knowing that this claim is true requires that we have knowledge that goes beyond both what we can think of things in general and what we intuit by sensibility. But this goes beyond what is possible to know for human beings and in this sense the assertion presupposes a different, mystical knowledge.

So Kant clearly took Leibniz to be a dogmatic idealist in the 1770s. However, Matthey has gone further and claimed, on the basis of the *Metaphysik L₁* and the first edition of the *First Critique*, that Kant is exercising a "benign neglect" (1983: 167) of Berkeley during the time around the publication of the first edition of the *First Critique* that only ends with the *Prolegomena*. What this suggestion fails to take into account is the *Metaphysik Mrongovius*²⁵. This lecture course was given in the winter semester of 1782-3 and the title page of the notes is dated February 4, 1783²⁶. This places it after the first edition of the *First Critique* (1781) and after the *Göttingen Review* (January, 1782), but before the *Prolegomena* (March or April²⁷, 1783). Since the references to Berkeley appear quite early on in the document it is natural to assume that Kant's criticism here is from mid to late 1782. What this lecture shows is that according to Kant, Berkeley was seen as an adherent to Leibniz' 'spiritual monadology' in the early 1780s.

In the first chapter "On general simple parts" of the second section "On general parts or monadology" (*Metaphysik Mrongovius*, 29: 927), Kant offers an exposition of idealism and here it is Berkeley that is taken to be the idealist, which is characterised as the view that "one imagines that outside oneself thinking beings are indeed present, but no bodies." (*Metaphysik Mrongovius*, 29: 928) As in the *Herder* lectures Kant again compares egoism and idealism, but Kant now states that "[i]dealism also has actual grounds for itself and is therefore also more probable than egoism." (*Metaphysik Mrongovius*, 29: 928) This indicates that rather than Kant ignoring Berkeley at the time of the first edition of the *First Critique* Kant had come to revise his understanding of Berkeley's idealism and takes it to be more formidable than he earlier believed it to be.

According to Kant, Berkeley adheres to idealism for two reasons. First, he is said to hold that if spirits were in interaction, so that their bodies are mere effects of the imagination

²⁵ This manuscript was only discovered in 1983, the same year that Matthey published his paper and the lack of reference to this work indicates that he was not aware of it at the time.

²⁶ See *Lectures on Metaphysics*, P. xxxv

²⁷ For a summary of the available evidence of when the *Prolegomena* was printed, see *Theoretical Philosophy after 1781*, 467n12

of these spirits, then “the world would lose nothing of its worth.” (*Metaphysik Mrongovius*, 29: 928) Since it is not necessary to assume the existence of bodies, the reality of a bodily world is therefore a useless hypothesis. This is the kind of argumentation that Kant attributes to Berkeley in the *Metaphysik Herder*. If this is the ground of idealism, then it is not very convincing. For showing that something is not necessary does not prove that it is not actual. But Kant also attributes another argument to Berkeley. He is said to hold the reality of bodies to be more than useless, and claim that an affirmation of the existence of bodies involve a contradiction.²⁸ According to Kant, “he [Berkeley] maintained that bodies are even impossible, because one would always contradict oneself if one assumes them.” (*Metaphysik Mrongovius*, 29: 928)

From this account of Berkeley we can gather that on Kant’s view of him he held the view that there are only thinking beings.²⁹ According to the second argument Berkeley is also said to find a contradiction in the notion of body. Like Leibniz in the first edition of the *First Critique* Berkeley is taken to be an idealists that finds a contradiction in the concept of body. Both Berkeley and Leibniz are therefore seen by Kant to be representative of dogmatic idealism, the position that denies of the existence of matter on the grounds of a perceived contradiction in the concept. They are further both seen as ‘spiritual monadologists’, adherents of the view that the only real things are simple, spiritual substances.

So between the time of the *Metaphysik Herder* and the *Metaphysik Mrongovius* Kant has found an argument against the dogmatic idealism of Berkeley and Leibniz. Berkeley’s metaphysics allows for something (namely, spiritual substance) underlying the actions of human beings. But bodies can have no real foundation, but are mere ideal creations in the mind. This view is contrasted with Kant’s transcendental idealism where “one assumes that appearances are indeed nothing in themselves, but that actually something unknown still underlies them.” (*Metaphysik Mrongovius*, 29: 298-9) In the *Metaphysik Herder* Kant had no answer to the view attributed to Berkeley, and he had to concede that the difference between dream and reality is one of coherence. But now Kant claims that his idealism concerns merely the form of appearances and not the matter; and so his critical philosophy has room, at least

²⁸ There is here a problem with the lecture notes. The note taker, or more probably the typist, takes the “Bishop Cloyd in Ireland” of the first argument and the “Bishop Berkeley in Ireland” of the second argument to be two different people, but of course they are both references to Berkeley (who was Bishop of Cloyne). So it is not clear whether both arguments are attributed to Berkeley or whether the first argument is some general view that idealist of this kind hold and then Berkeley who, as the notes say, “went even further” (29: 928) is taken to be a proponent specifically of the second argument.

²⁹ Kant had earlier referred to this view as “mystical idealism” in connection with Leibniz in the *Metaphysics L₁* lectures.

in thought, for the thing underlying outer appearances, which is contrasted to Berkeley's dogmatic denial of the same on the basis of a contradiction.

This characterisation of Berkeley was not held for long. Within a couple of months Kant came to develop a new conception of Berkeley and a new kind of argument against his philosophical position. This argument is designed to show that Berkeley has a fundamentally flawed conception of experience because his understanding of the nature of space is incorrect and it is this new approach to Berkeley that we now turn to in Chapter 2.

Chapter 2: Kant's transcendental idealist conception of space as a refutation of Berkeley's philosophy

In this chapter I will consider Kant's criticism of Berkeley in the *Prolegomena* and B-edition of the *First Critique* and the philosophical position that it depends on. In Chapter 1 we saw that from the *Metaphysik Herder* up until the *Metaphysik Mrongovius* Kant's conception of Berkeley's philosophy progressed. He is first viewed as a sceptic, then, as Kant's understanding of idealism deepened (in particular, the way it differs from solipsism and egoism), as a Leibnizian monadologist. After the *Göttingen Review* Kant again changes his attitude towards Berkeley. We will see that he begins to engage more with Berkeley himself than with the received view of him. The reasons for this are both philosophical and historical. The most important reason of the first kind is the fact that during the 1770s and 80s Kant develops his critical philosophy. Through this system he finds a new way of looking at past philosophers, from the transcendental point of view, so to speak, which allows him to place a host of prominent philosophers in categories that had been determined by the conceptual revolution of his new philosophy (such as the 'transcendental realist' or 'empirical idealist' classifications). Furthermore, by means of the *Göttingen Review* Berkeley also becomes a problem for Kant on several levels. He is forced to show that his new system differs substantially from Berkeley's philosophy so that his philosophy is not identified with the misrepresentation of Berkeley that was presented, for example, by Wolff and Hume. He also needs to protect his claim to originality.

All this makes it likely that Kant attempted to get a clearer understanding of Berkeley's works. At the time of the *Prolegomena* there was quite a significant amount of first hand material available. In 1781 an accurate translation of Berkeley's *Three Dialogues* was finally made available in German. Kant owned this book.¹ Further, given Kant's preoccupation with the concept of space and his realisation that a metaphysical foundation for natural science needed to be written, it is likely that he also acquainted himself with Berkeley's *De Motu*, which was written in Latin. It is reasonable to assume that all these factors contributed to Kant's new approach to Berkeley in some way.

In all of Kant's references to Berkeley in the *Prolegomena* (4: 293, 274-5) and the B-edition of the *First Critique* (B70-1, B274) Kant is in various ways saying that there is something wrong with Berkeley's conception of space. What is original in my reading of

¹ See Warda (1922: 46)

Kant's arguments against Berkeley and what I will argue for in this chapter is that I take Kant's criticism of Berkeley in the *Prolegomena* to be quite different from the argument in the B-edition of the *First Critique*. While Kant makes reference to space in both works he does so in quite different ways.²

In the *First Critique* Kant draws our attention to what he takes to be a metaphysical aspect of Berkeley's conception of space, that space is not real, that it is a "non-entity" (B71, 274). Kant understands Berkeley's form of idealism in this way because he takes it to assume that if space is anything, it must have "*objective reality*" (B70). This has been interpreted as meaning that Kant takes it to follow from Berkeley's idealist principle that he rejects the notion of space as something that must have "objective reality" in a similar fashion to how he argues against material substance.³ In the *Prolegomena* Kant claims that there is an epistemological deficiency in Berkeley's conception of space. This is that space is not an *a priori* intuition that functions as a transcendental condition for synthetic *a priori* knowledge. Instead, Berkeley is taken to have a merely empirical conception of space. This argument against Berkeley is therefore articulated within the Kantian problematic of the general problem of pure reason, i.e., "How are *a priori* synthetic judgements possible?" (B19)

This two level attack on Berkeley's conception of space mirrors Kant's rejection of the Newtonian and Leibnizian conceptions of space in the *Transcendental Aesthetic* of the *First Critique*. All three theories are said to have specific metaphysical problems with their respective view. They also fail on the epistemological level because they cannot make the possibility of *a priori* knowledge of space intelligible. In order to assess Kant's criticism of Berkeley in his critical work, Kant's theory of space must be considered and its difference from other conceptions of space, the absolute and relational, needs to be explained. Accordingly, in Section 1 I will consider Kant's conception of his transcendental idealism and the kinds of problems he finds with the Newtonian and Leibnizian theories of space. In Section 2 I will explain how Kant's criticism of Berkeley in the *Prolegomena* and the B-edition of the *First Critique* corresponds to this.

² See Allison (1973: 62) and Buroker (1981: 14) for a different view. Their understanding of the relation between Berkeley's immaterialism and his notion of space will be considered in more detail in Chapter 3.

³ See Allison 2004: 25-6 who reads Kant's argument against Berkeley in B70-1 in this way. He says "[s]ince we have seen that the Newtonian conception [of space] is transcendently realistic, it follows that Berkeley's denial of material substance, which Kant dismissively glosses as "demot[ing] bodies to mere illusion," should be viewed as at least an indirect offshoot of such realism."

1) Kant on the transcendental ideality of space

In the early and mid 1700s two seemingly contradictory and mutually exclusive accounts of the nature of space were dominant. On the one hand there was Newton's conception of space as an absolute existence independent of outer objects and on the other hand there was Leibniz' conception of space as something merely ideal and relational that is dependent on outer objects.⁴ Before Kant's articulation of his transcendental philosophy he wavered between these two theories.⁵ With the advent of the transcendental philosophy Kant was able to reject both views and articulate his own conception of the transcendental ideality of space.

In the first sub-section I will consider the absolute and relational conceptions of space and explain the basic problems that the proponents of each attribute to the other. This will be useful when I review Kant's transcendental ideal conception of space which he contrasts with the two transcendentially real conceptions of absolute and relational space in the second sub-section below.

A) *The absolute and relational conceptions of space*

In the *Principia* Newton explains that he takes there to be two senses of the word 'space'.

Absolute space, in its own nature, without regard to anything external, remains always similar and immovable. Relative space is some movable dimension or measure of the absolute spaces; which our senses determine by its position to bodies, and which is vulgarly taken for immovable space; such as the dimensions of a subterraneous, an aerial, or celestial space, determined by its position in respect of the earth. Absolute and relative space, are the same in figure and magnitude; but they do not remain always numerically the same. (Scholium, §2)

On the one hand there is the space that is determined by our experience of the positions of bodies and this is "relative space". On the other hand there is the space in which all bodies

⁴ The sharp contrasts between Leibniz and Newton were brought out in the correspondence between Leibniz and Clarke, an English theologian and follower of Newton. The *Controversy* was a set of five letters by Leibniz and five replies by Clarke mediated by Caroline, Princess of Wales, between 1715-6. In the exchange philosophical and theological issues of contention between Leibniz' philosophical system and the philosophy of nature expounded by Newton and his followers were vigorously debated.

⁵ Kant develops his theory of space in a number of pre-critical works. In the *Elucidation*, 1:414-5 and *Physical Monadology* 1:478ff he attempts to construct a theory of space understood as the result of the forces of physical monads. He seems to have formulated doubts about this theory in the *Inquiry*, 2:286-7 and finally explicitly rejected it in the *Metaphysical Foundations*, 4:503-4 and the *Second Antinomy of the First Critique* (A439-42/B467-70). See Laywine (1993) and Schönfeld (2000) for the evolution of Kant's pre-critical conception of space.

and all relative space are contained, this Newton calls “absolute space”. Because absolute space has “its own nature, without regard to anything external” it must be understood as an entity that exists independently of the things it contains. Since it cannot be influenced by anything it is in a sense eternal and because it contains all outer things it is in a sense infinite. However, as Clarke explains, space is not itself an infinite and eternal being or substance but a property or consequence of an infinite and eternal being, God (*Controversy*, C3, §3). It is important to make this distinction because otherwise absolute space appears to partake in the divine attributes.

Absolute space is further characterised as “always similar and immovable”. The immovability of absolute space means that parts of absolute space cannot move. In order for parts of absolute space to move we would have to conceive that they are moved “out of themselves” (Newton, *Principia*, Book 1, Definitions, Scholium, §4), which is impossible. The immovability of absolute space leads to the idea of the similarity of its parts. By similarity it is meant that the relations between parts of space cannot vary but are everywhere the same and this is best understood in contrast with the way that spatial relations between objects can vary. The spatial relations between bodies can change because bodies can move in space whereas the relations between parts of absolute space cannot vary because they cannot be moved.⁶

In this way absolute space can be thought of as a container for all outer objects. Because of its unchanging, similar and immovable nature it is a perfect frame of reference for all events that take place in the universe. To understand this it is necessary to be aware of the further distinction that Newton makes between absolute and relative motion. This distinction depends on the distinction between absolute and relative space. Absolute motion is the change of a body’s place in absolute space whereas relative motion is the change of a body’s place in relative space. Relative motion can be perceived but these observations are often, according to Newton, deceptive. A powerful case of this deception is that the sun appears to move around the earth, whereas the opposite is really the case. Therefore, to know if an object is ‘really’ or ‘truly’ in motion or rest we need to determine whether it has any absolute motion, that is, whether it is moving in absolute, immovable space. Absolute motion cannot be immediately observed, that would require that we have a point of observation outside of absolute space which is impossible. Newton therefore suggests that we must distinguish

⁶ Buroker (1981: 8-9) gives a succinct account of these features of absolute space.

between absolute and relative motion indirectly, by examining them “by their properties, causes and effects” (Newton, *Principia*, Scholium, §4).⁷

Leibniz famously presents his relational view of space in the fifth letter of the *Controversy*.⁸ In §46 of this letter Leibniz responds to Clarke’s claim that the former confounds “the extension of things” with “the space according to which that extension is taken”. This implies that Leibniz holds that extended things and space are conceptually on a par with each other. In §46 Leibniz rejects Clarke’s claim and states that one of them (space) presupposes the other (extended things). In the next section he aims to show how he understands this difference by considering how people “come to form to themselves the notion of space.” (*Controversy*, L5, §47)

According to Leibniz, we first consider that many things (i.e. extended things, given the context of §46) exist “at once”, that is to say, that they “coexist”. Further we observe an order by which all these coexisting things are related to each other. This order is the relations of “situation or distance”. So at any given moment in time all bodies are related to each other with regard to how far apart they are and with respect to how the parts of the object or constellation of objects are related.⁹

Given these extended things he continues to explain how the concept of space is abstracted from them. Following Leibniz’ notation, let us assume that the bodies A, C, E, F, G, etc. are related by coexistence at t_1 . Then, at t_2 , A changes its relation to the set of bodies C, E, F, G, etc. without any change in the latter’s relations to each other. Leibniz understands this to mean that A has moved. Let us further assume that the body B is also moving and that at time t_3 B stands in the same relation to C, E, F, G, etc. as A did at t_1 and that C, E, F, G, etc. still have not moved. Leibniz holds that this means that B at t_3 is in the same place as A at t_1 . This is, Leibniz maintains, a kind of definition of place. The concept of space is then finally acquired by conceiving of the totality of places. This account of the acquisition of the concept of space shows that Leibniz held that bodies are conceptually prior to space.

⁷ In §4 of the Scholium Newton proceeds to explain how to distinguish between the properties, causes and effects of absolute and relative motion. Most famously he argues that the effects of absolute motion can be distinguished from that of relative motion by means of the water-bucket experiment and the rotating globes example. All of Newton’s arguments for distinguishing between absolute and relative motion are highly controversial and this is not the place to deal with this issue. In Chapter 3 Berkeley’s and Kant’s objections to the conception of absolute motion will be considered in some detail.

⁸ Leibniz mentions this view on in papers L3, §4-5; L4, §16; L5, §47 & §104.

⁹ See Leibniz’ early (1666) *Dissertation on the art of combination* (Loemker, 1969: 77-8) for a definition of ‘situs’ and a distinction between two senses of that term. Since Leibniz states that the order is one of “situation or distance” he must take situation to mean situs in the second sense mentioned in the 1666 work. That is to say, as the shape of a thing or constellation of things, for the first sense is equivalent to distance (i.e., the shape of the many things can be represented by a line).

But Leibniz goes on to say more than that. He also establishes the ontological relation between bodies and space, i.e., he states to what extent space is real, as compared to bodies. Leibniz claims that two different things cannot in reality stand in the same relation to other things. So forming the concept of space requires “supposing or feigning” (*Controversy*, L5, §47) that extended things do not change their state, i.e., that they do not constantly move.

For two different subjects, as A and B, cannot have precisely the same individual affection¹⁰, it being impossible that the same individual accident should be in two subjects or pass from one subject to another. But the mind, not contented with agreement, looks for an identity, for something that should be truly the same, and conceives it as being extrinsic to these subjects; and this is what we call *place* and *space*. But this can only be an ideal thing, containing a certain order, wherein the mind conceives the application of relations. (*Controversy*, L5, §47)

Leibniz concludes here and later (*Controversy*, L5, §104) that there is no real being answering to the concept of space “distinct from the mind and from all relations”. So space is something “merely ideal” (*Controversy*, L5, §104). It results from our mind striving to put the ever-changing relations between existing bodies in an ideal order and does not have any existence prior to our cognition of objects. So it is known by means of acquaintance with extended objects. To this extent space is known by means of experience. By giving an account of how we acquire the concept of space Leibniz believed that he has also given an account of the nature of space itself. Place and space are nothing but imaginary devices that our minds create to make the constantly changing external world more manageable. Therefore “there needs not be any real and absolute being answering to that idea distinct from the mind and all relations.” (*Controversy*, L5, §104) Bodies are ‘actual’ and ‘existing’ and the concept of space is composed of the relations holding between the bodies and would not be conceivable without them.

While this is how Leibniz conceives of the relation between space and bodies things are further complicated because of his view on the reality of bodies. According to him our

¹⁰ Leibniz defines ‘affection’ as a mode of being. This is a quantity, quality or relation (*Dissertation on the art of combination*, Loemker, 1969: 76) Given Leibniz’ main thesis, that space is an abstraction of the relation between objects, he appears to have the impossibility of equality of relation in mind in the passage quoted. But since he uses the more general term ‘affection’ here, an appeal to the impossibility of equality of quantity or quality cannot be ruled out. Perhaps he is making the weaker claim that two objects cannot have the same quality, the same quantity and the same relations to other things, whereas identity with respect to one or even two of these modes is possible. This issue can only be resolved by an explication of Leibniz’ principle of the ‘identity of indiscernibles’, which would require more space than can be given here.

sensible experience of things is a confused understanding of an underlying substantial reality. As he says in a letter in his *Correspondence with Arnauld*,

[E]xtended mass without entelechies and consisting only in these qualities [figure, magnitude, motion, colour and sound] is not the corporeal substance but a mere phenomenon, like the rainbow. It is only indivisible substances and their different states which are absolutely real. (*Letter to Arnauld*, Oct. 9, 1687, §2)

Outer experience is therefore itself a construct of distinct substances into phenomenal unities. As a consequence, space is the result of a double act of abstraction or imagination. First our intellect represents monadic reality as experience of outer objects with certain relations between them. Then these objects are abstracted away and their actual relations (and also all the possible relations that objects could take up) are represented as one ‘thing’, space.

In the *Controversy* Leibniz’ theory of reality that underlies his account of space is not discussed and so the opposition between Newton’s and Leibniz’ theory of space there is not set in terms of the nature of experience and physical objects. Instead, the central issue about space in the *Controversy* is whether the absolute conception of space diminishes God’s powers. Leibniz’ claim that it does instigates the whole exchange of letters.¹¹

If absolute space exists, then it seems that either (a) there would be something having an absolute being that exists alongside God or (b) that absolute space would pertain to God’s nature. The first possibility is unacceptable because then absolute space would be an entity on par with God (*Controversy*, L1, §3). The second possibility is problematic because space has parts and then it would seem that God would also be divisible (*Controversy*, L3, §3). Clarke seeks to defend a version of (b), i.e., that space is a property of God (*Controversy*, C3, §3). He claims that this does not imply that God consists of parts because absolute space is essentially one and so indivisible (*Controversy*, C3, §3). Leibniz’ response is to argue that (b) really must collapse into (a). The reason for this is that if absolute space existed then God could not change it, since it is immutable and eternal (*Controversy*, L4, §10). It is something that God has no control over and so it does not strictly speaking belong to him as a property but is independent of him. To this Clarke replies that the eternity and immutability depends on God because they are caused by him (*Controversy*, C4, §10). This did not satisfy Leibniz, he continued his attack on the relation between God and absolute space in his 5th letter (*Controversy*, L5, §50).

¹¹ See *Controversy*, L1, §1, §3 & §4.

This is not a comprehensive account of the theological problems with the absolute view.¹² But it is sufficient to conclude that the theological complications with the theory of absolute space were pressing. If absolute space exists it seems that either it is, so to speak, a rival to God, or if it is a property of God then it seems to blur the distinction between God and the universe and make God spatial. These sorts of problems do not arise for Leibniz' conception of space. Because space is an object of our imagination it need not stand in any relation to God. However, one could wonder what Clarke and Newton would have said about Leibniz' theory of monads and their relation to physical objects.

We can conclude that a host of issues regarding the nature of space were debated in Kant's time. Firstly, the most basic disagreement between the relational and absolute conception of space, which defines the respective positions, concerns a conceptual priority. The question is whether space is independent of and a condition for spatial relations between extended objects (Newton) or if the spatial relations of extended objects make the representation of space possible (Leibniz). Secondly, closely connected to this is the issue of whether space has an objective reality, that is, if it exists independently of the (human) mind. The Newtonian view is that space has an absolute existence that is independent of human experience whereas Leibniz claimed that space is an object of the human imagination. Thirdly, there is disagreement about the metaphysical framework that underlies these issues. The Newtonians take absolute space to be a property of God, whereas Leibniz takes spatial relations between objects to be a confused representation of an underlying monadic structure. These metaphysical frameworks could be called the "traditional ontologies of space and time" (Allison, 2004: 98).

B) Kant's transcendental idealist theory of space

Kant's own theory of space is presented as the only conception that can avoid all the problems inherent in the two traditional views. This new approach is premised on Kant's 'Copernican' (BXVI) hypothesis in philosophy. Kant proposes to conduct an experiment in philosophy where we account for our *a priori* knowledge of objects (such as geometrical knowledge) in a new way. He suggests that we should not try and do that by means of a metaphysical framework, a realm of real mind-independent beings or "things in themselves" (BXX) in Kant's terminology, to which our knowledge conforms. Instead, we take our *a priori* knowledge to be explicable on the hypothesis that objects, as appearances, conform to

¹² See Vailati, 1997, Chapter 1 for a thorough discussion of this issue.

our faculties of representation. So Kant is not suggesting a new metaphysical framework, a new ontology of space and time, he is presenting “an *alternative to ontology*” (Allison, 2004: 98)

Kant took the absolute and relational views to be expressions of the same underlying assumption about the relation between the mind's representations and outer objects. They are both conceptions of space that Kant takes to fall under the classification of “transcendental realism” (A369). This means that they both take space to depend on the object as it is in itself, though these objects are quite different in nature, i.e., God in Newton's case and monads in Leibniz' case. In opposition to this view Kant labels his own understanding of space “transcendental idealism” (A369, see also A28/B44). On this view space is not related to things as they are in themselves but can only be meaningfully understood as a condition for our way of representing things in experience (A27-8/B44).

Kant's thesis of the transcendental ideality of space and time is explained and argued for in the *Transcendental Aesthetic*. The overall aim of that section is to determine the nature of space and time. In the first part of the *Aesthetic*, the *Metaphysical Exposition*, Kant cites four alternatives: Space can be (1) an actual entity, (2) it can be the determination of things that pertain to them even if they are not objects of experience, (3) a relation of things that pertain to them even if they are not objects of experience, or finally, (4) space can be understood as being merely the form of intuition and so that space belongs to the subjective constitution of our mind and is nothing apart from this constitution (A23/B37-8). The second and third conceptions are Newton's and Leibniz' views, respectively. The fourth is Kant's own view.

Already at the outset we see that Kant's view differs from his predecessors because it is a theory that explicitly claims that space is not explicable in terms of an underlying reality of things in themselves but is couched solely in terms of our mind's relation to objects of experience. However, Kant's discussion of space in the *Transcendental Aesthetic* concerns not only the distinction between transcendental idealism and realism but refers to all the main themes that were raised about space in the *Controversy*. Kant considers (a) the conceptual priority of space and outer bodies, (b) whether the source of the representation of space is conceptual or intuitive and also (c) gives an argument that is to confirm the hypothesis that space belongs to the constitution of the subject or to objects in themselves. It is his take on all these issues that together make up his unique conception of the nature of space.

Kant begins his account of space, first with a *Metaphysical* and then with a *Transcendental Exposition* of the concept of space. Only towards the end of the

Transcendental Aesthetic, in the *General remarks on the Transcendental Aesthetic* does Kant claim to show that what he has put forward regarding the nature of space (and time) “[does] not merely earn some favour as a plausible hypothesis, but that it be as certain and indubitable as can ever be demanded of a theory that is to serve as an organon.” (A46/B63)

The *Metaphysical Exposition* is an analysis of the concept by which essential marks of space and time are to be identified. The two characteristics of space that Kant discovers here are that space is *a priori* (i.e., prior to and independent of experience) and an intuition (knowledge pertaining to a given individual as opposed to a general concept of relations of things). Accordingly, the claim that space is *a priori* is an answer to (a), whether space is conceptually prior to objects in space or if objects in space makes the representation of space possible. In this way he can be seen to endorse one aspect of Newton’s theory of space, the independence of space from sensible objects. The claim that space is an intuition is an answer to (b), whether space is a concept or is related to our way of coming into contact with particulars, i.e., our sensible faculty.¹³ So this can be seen as an endorsement of an aspect of the relational theory of space, that despite the fact that space is prior to sensible objects, it is not of a wholly different kind from sensible things.

Kant gives two arguments for why he takes space to be an *a priori* representation, that is to say, that the representation of space is a necessary prerequisite for experiencing objects in space (following Allison, 2004: 100-8, I will refer to them as the “*a priority* arguments”).

Space is not an empirical concept which has been derived from outer experiences. For in order that certain sensations be referred to something outside me (that is, to something in another region of space from that in which I find myself) and similarly in order that I may be able to represent them as outside and alongside one another, and accordingly as not only different but as in different places, the representation of space must be presupposed. The representation of space cannot, therefore, be empirically obtained from the relations of outer appearance. On the contrary, this outer experience is itself possible at all only through that representation. (A23/B38)

Kant is here saying that the task of referring to sensations as (a) outside me and as (b) outside each other presupposes the representation of space. Relations such as ‘next to’ and ‘different place’ are only possible on the assumption of space. Kant’s point is that recognising things to be in different places presupposes the representation of space, in which all places must be

¹³ As we will see in Chapter 4 this is not the whole story. The faculty of the understanding plays the crucial role of making possible the representation of space as an object through a synthesis. The synthesis is, however, not a synthesis of concepts.

contained. This is the opposite of Leibniz' view that space is composed by the above mentioned relations. Leibniz' view is therefore circular because we cannot make sense of the idea of two different places if we do not conceive of them as already in one space.

The second *a priori* argument reads,

Space is a necessary *a priori* representation, which underlies all outer intuitions. We can never represent to ourselves the absence of space, though we can quite well think it as empty of objects. It must therefore be regarded as the condition of the possibility of appearances, and not as a determination dependent upon them. It is an *a priori* representation, which necessarily underlies outer appearances. (A24/B38-9)

Here Kant argues that outer objects cannot precede space because the representation of space can be thought even without there being any objects, while it is impossible to represent the absence of space (at least such a representation cannot belong to outer sense). So when an outer object is represented there is space, but there could be a representation of space without there being any objects in it. This means that according to Kant the representation of empty space is a thought with some content. For example it can be the basis of a mathematical construction of a geometrical object or principle. If the representation of space is prior to any experience of an outer appearance, then it is not an empirical concept.

He then gives two arguments for why space is an intuition rather than a concept, that is to say that space is originally a whole of which parts of space are created by limitation of the whole and that space contains an infinity of representations within itself (again following Allison, 2004: 109-112, I will refer to them as the "intuition arguments").

Space is not a discursive or, as we say, general concept or relations of things in general, but a pure intuition. For, in the first place, we can represent to ourselves only one space; and if we speak of diverse spaces, we mean thereby only parts of one and the same unique space. Secondly, these parts cannot precede the one all-embracing space, as being, as it were, constituents out of which it can be composed; on the contrary, they can be thought only as *in* it. Space is essentially one; the manifold in it depends solely on limitations. Hence it follows that an *a priori*, not an empirical, intuition underlies all concepts of space. (A24-5/B39)

Here Kant is arguing that a portion or region of space (a place) cannot be conceived without thinking that it is contained within more space. So there is one space that all places are in and must be presupposed in order to conceive of parts within it. Therefore space is not composed

of places, instead places are limitations of space. Space should therefore be characterised as singular and non-composite. A concept is by its very nature general and composed of other, more general concepts. So space is not a concept and therefore an intuition.

Space is represented as an infinite *given* magnitude. Now every concept must be thought as a representation which is contained in an infinite number of different possible representations (as their common character), and which therefore contains these *under* itself; but no concept, as such, can be thought as containing an infinite number of representations *within* itself. It is in this latter way, however, that space is thought; for all the parts of space coexist *ad infinitum*. (A25/B39-40)

Finally Kant points to a second difference between the representation of space and a concept. A concept, e.g., the concept 'dog' can apply to an indefinite number of individuals. But it cannot contain an indefinite number of more general marks (carnivorous, animal, four-legged, etc.) because then it is not general any more but individual, i.e., then it is not a representation that is a concept but a representation that is an intuition. However, space does contain an indefinite number of places in this way (as established by the first a priority argument and the first intuition argument). So the representation of space is an intuition, not a concept.

The second exposition is transcendental rather than metaphysical. Again Kant aims to find something essential about the concept. But while the metaphysical investigation proceeded by analysing the bare concept of space, the transcendental investigation employs a different method. Kant claims that the concept of space explains how certain knowledge (geometry) can be *a priori* and synthetic. The aim of the transcendental exposition is to give an account of how space makes this knowledge possible and such an explanation requires that the concept of space is in a certain way: that it belongs only to our subjective constitution. So the result of the *Transcendental Exposition* is that Kant finds a further characteristic of space that explains how we can have a certain kind of *a priori* knowledge. The conclusion (as I will explain in more detail shortly) is that the *a priori* intuition of space "has its seat merely in the subject, as its formal constitution for being affected by objects" (B41) and not to the things in themselves, for otherwise geometry would be an empirical, not an *a priori* science.

In the following section, *Conclusions from the above concepts*, Kant proceeds to draw two conclusions about the nature of space on the basis of the two expositions. The first conclusion is negative. Because space is an intuition that is *a priori* it cannot pertain to things in themselves. The reason for this is that the properties that belong to a thing itself cannot be

intuited prior to the acquaintance with the thing and therefore cannot be intuited *a priori*. The second conclusion is positive. From the expositions it follows that space is the form of appearances of outer sense or “the subjective condition of sensibility, under which alone outer intuitions are possible for us.” (A26/B42) This view explains the how we have *a priori* knowledge of objects. The form of outer sense lies ready in the mind before we are affected by objects and will determine all things that come before us as outer objects. So the structure of outer objects is determined before experience and this is why the principles of the relations of outer objects can be known independently of experience. With these two conclusions Kant takes himself to have shown that space is ‘empirically real’, i.e., that all things that we can experience as objects outside us have spatial properties determinable by geometry (second conclusion); and that space is ‘transcendentally ideal’, i.e., that it is nothing besides how we are affected by objects and so does not belong to things in themselves but only to things in so far as we have experience of them (first conclusion) (A28/B44).

The subjectivity of space also means that the pure intuition of space is something distinctly human. “We can accordingly speak of space, extended beings, and so on, only from the human standpoint [*nur aus dem Standpunkte eines Menschen*].” (A26/B42) This does not mean that other thinking beings necessarily must have other kinds of intuition. Rather, it means that we cannot abstract away our kind of intuition when trying to conceive what another thinking being’s pure intuition is like. So it is pointless to try and speculate about the intuition of other thinking beings. Perhaps other thinking beings have the same, similar or completely different forms of intuition. “[W]e cannot judge in regard to the intuitions of other thinking beings, whether they are bound by the same conditions as those which limit our intuition and which for us are universally valid.” (A27/B43) On Kant’s view we are limited to the claim that space is a form of human intuition.

Having argued for his conception of space and having decided between the different alternatives that he presented at the beginning of the *Aesthetic* Kant proceeds, in the *Elucidation* of the *First Critique*, to spell out how his conception of space differs from these other views. Kant refers to the positions that hold that space is either “subsisting” or “inhering”. The first corresponds to the view that space is an actual entity and the second to the view that space is a relation or determination of things. The two positions are to this extent radically different. However, according to Kant, they both share the assertion that space has an absolute reality, i.e., that things in general are in space and have spatial properties. So these two views are for this reason similar, i.e., ‘transcendental realist’ views with regard to space.

Kant explains that the first view “is generally the position of the mathematical investigators of nature” (A39/B56) whereas the second view is held by “some metaphysicians of nature” (A40/B56). These descriptions are rather vague. In the embryonic version of the *Aesthetic* that Kant put forward in §3 of the *Dissertation* he is more specific and clearly refers to the Newtonian and Leibnizian views. First he speaks of those who “conceive of it [space] as an *absolute* and boundless *receptacle* of possible things – an opinion which finds favour with most geometers, following the English” (*Dissertation*, 2: 403). Second he refers to the view that space “is the relation *itself* which obtains between existing things, and which vanishes entirely when the things are taken away, and which can only be thought as being between actual things – an opinion which most of our own people, following Leibniz, maintain.” (*Dissertation*, 2: 403-4)

Returning to the *Elucidation* of the *Transcendental Aesthetic*, Kant sets up the opposition between Newton’s, Leibniz’ and his own view in an interesting way. He argues that both the Newtonian and Leibnizian theories have a problem peculiar to each and that the apparent solution to either would then mean that each one would have to adopt the opposing position. However, then we are of course faced with the problem of that position. Therefore, the way to solve the dilemma is to reject a premise shared by both views, namely the transcendental realist conception of space and so adopt Kant’s transcendental idealist position on the matter.

Kant presents two arguments against the Newtonian view that are similar to Leibniz’ theological objections against it in the *Controversy*. Firstly, “they [the mathematical investigators of nature] must assume two eternal and infinite self-subsisting non-entities (space and time) which exist (yet without there being anything real) only in order to comprehend everything real within themselves.” (A39/B56) To hold this is absurd because the concept of a ‘self-subsisting (something real that is the necessary condition for the existence of all things) non-entity (something that is neither substance nor anything that inheres in a substance)’ is inconceivable (A39/B56, see also B70). Kant is suggesting that the Newtonian view has problems with exactly how to characterise absolute space, since (as we have seen in the *Controversy*) it cannot be a substance, yet, it must have an absolute existence. Secondly, while space can be thought of as a receptacle for things that appear in space, the notion of absolute space is also problematic “if the understanding would go beyond this field” (A40/B57). This seems to be a reference to problems regarding the relation between God and space, again suggesting the Leibnizian criticism in the *Controversy*. For

example, by making space into a condition for existence in general it is also a condition for the existence of God (B71).

The relational view does not have these problems. As already stated above, the relational view need not state that space is related to God. However, the Leibnizian view also has a metaphysical framework underlying it. As we saw Leibniz' has a three tier account of reality, with the representation of space at the top then physical objects underlying that and finally the monads underlying the bodies. In the *Elucidation* Kant argues against the conception of the two top tiers. The problem that confronts the relationalist view concerns our knowledge of outer objects and the principles of geometry. According to Kant the relationalist view holds that "space and time are relations of appearances [...] that are abstracted from experience though confusedly represented in this abstraction" (A40/B56-7). This view also has two problems. Firstly, because space is a result of an abstraction of experience, space is an empirical concept and geometry must, contrary to what is generally agreed, be an *a posteriori* science. Secondly, space is the result of a confused representation of the reality of things and so our experience of things as in space is a misrepresentation of the way things really are. In other words, there is no truth (or at most partial truth) in outer experience as such.

Kant expands on his metaphysical attack on the Leibnizian view in the *General remarks on the transcendental aesthetic*¹⁴. This objection is concerned with the bottom two tiers, the characterisation of the relation between physical objects and monads. According to the tenets of the "Leibnizian-Wolffian philosophy" (A44/B61) things that the sensibility represents as in space are a representation of things in themselves, but it is represented in a confused, incorrect way: "under a heap of marks and partial representations that we can never consciously separate from one another" (A43/B60) This is because on Leibniz' view reality is constituted of concepts (monads) and what is sensible is a partial representation of this.

Kant avoids this problem by completely divorcing our representation of objects of outer sense from things as they are in themselves.

¹⁴ In the first edition this section Kant presents two criticisms of the transcendental realist view. In the second edition three passages are added. The first passage (B66-9) gives a new kind of argument for the ideality of outer and inner sense. This argument states that our cognition through intuition contains only relations and so no things in themselves can be intuited by us. The second passage (B69-71) is the new criticism against Berkeley that will be considered in sub-section 3. The third passage (B71-2) concerns the metaphysical problem with the absolute view, mentioned above.

The representation of **body** in intuition [...] contains nothing at all that could pertain to an object in itself, but merely the appearance of something and the way in which we are affected by it; and this receptivity of our cognitive capacity is called sensibility and remains worlds apart from the cognition of the object in itself even if one might see through to the very bottom of it (the appearance) (A44/B61)

As he says in an earlier passage,

the things that we intuit are not in themselves as they appear to be to us; and that if we remove our own subject or even only the subjective constitution of the senses in general, then all constitution, all relation of objects in space and time, indeed space and time themselves would disappear, and as appearances they cannot exist in themselves, but only in us. (A4/2B59)

So for him bodies are not confused representations of things as they are in themselves because they are not representations of things as they are in themselves at all.

Like the relationalist view, the absolute position has its strength where the other position has its weakness. Accordingly, the absolute view does not have the problem of seemingly contradicting plain truths about mathematical propositions. In Kant's words it succeeds "in opening up the field of appearances for mathematical assertions." (A40//B57) In the context of the theory of space, I take this to mean that if space is taken to be a condition for the existence of all outer things then it is something *a priori* (but objective as opposed to Kant's view that it is subjective). Therefore we could have *a priori* knowledge of spatial properties on the Newtonian view (it seems); and so we would not have to revise the view of geometry as an *a priori* science.¹⁵

In the second passage of the *General remark* Kant puts forward a kind of epistemological argument for his transcendental idealist position and against the transcendental realist. The conclusion is that the transcendental realist cannot hold that we can have synthetic *a priori* propositions about objects of outer sense. This appears similar to

¹⁵ Another way that the absolute view 'opens up the field of appearances to mathematical assertions' is in the mathematical determination of motion. If we take there to be an all encompassing unmovable space that contains all physical objects then we have a framework outside the observable sensible objects by which we can determine which of these objects are absolutely at rest or in absolute motion and what objects are only apparently at rest and in motion. In fact, because of the great success of the Newtonian science it is one of Kant's great challenges to explain how we can account for scientific accounts of motion without the belief in the actual existence of absolute space. Kant tackles this problem in the *Metaphysical Foundations*, and I will consider his solution in some detail in Chapter 3.2.

the argument Kant put against the Leibnizian view in the *Elucidation*, but this is in fact not the case. Surprisingly, this turns out to be an argument against the Newtonian conception of space.

This is not immediately clear as Kant begins his argument by stating that the position he is arguing against is the view that “space and time are in themselves objective and conditions of the possibility of things in themselves”. In the *Elucidation* Kant says that both the Newtonians and the Leibnizians “assert the absolute reality of space and time” (A39/B56). However, the claim that the position he argues against asserts that space is ‘the possibility of things in themselves’ suggests the Newtonian rather than the Leibnizian view as Newton holds that space is the condition for the existence of all outer things whereas Leibniz takes space to be something merely ideal that is abstracted from those very things. That this is indeed the right way of understanding who Kant’s opponent is here is cemented in the next sentence where Kant says that if his opponent’s position is accepted, then it would follow “that there are a large number of *a priori* apodictic and synthetic propositions about both [space and time], but especially about space” (A46/B64). In the *Elucidation* Kant has argued that on the Leibnizian view of space as derived from experience that in turn is a confused representation of things in themselves it follows that they “must dispute the validity or at least the apodictic certainty of *a priori* mathematical doctrines in regard to real things (e.g., in space)”. Since what follows from the Leibnizian view of space is the exact opposite of what supposedly follows from the position that Kant is here arguing against, it is clear that the target here is not Leibniz, even if the argument concerns geometry. Rather, Kant’s argument is here that even if we assume that space is a thing that is the condition for all things and so objective and *a priori*, this will still bring us into conflict with the status of geometrical propositions. The absolute view fares no better than the relational view in making the possibility of geometry as a synthetic *a priori* science intelligible. Instead, only on the supposition that space is subjective and an *a priori* intuition can it be understood that we can have synthetic *a priori* knowledge about outer objects.¹⁶

The argument is an ‘argument from elimination’. Kant asks how we arrive at the universal and necessary truths of geometry. There are, he states, four possibilities. Through (1) intuition or (2) concepts, and these cognitions are either (a) *a priori* or (b) empirical.

¹⁶ Only on the explanation that this argument is for the *a priori* subjectivity of space and against the Newtonian *a priori* objective conception of space does the reference at the outset at the argument that it “can serve to make that which has been adduced in Paragraph 3 [*Transcendental Exposition*] even more clear.” (B64) make any sense. For in the *Transcendental Exposition* the aim is to establish the subjectivity of space, something that the Newtonian would deny but which the Leibnizian, who takes space to be a mere creature of the imagination, would not dispute.

From (1) or (2) of type (b) we can only arrive at empirical propositions lacking in universality and necessity. From (2) of types (a) or (b) no synthetic statements can be produced. There remains therefore only (1a) an intuition that is *a priori*. Kant concludes,

[i]f, therefore, space (and time as well) were not mere form of your intuition that contains *a priori* intuitions under which alone things could outer objects for you, which are nothing in themselves without these subjective conditions, they you could make out absolutely nothing synthetic and *a priori* about outer objects. (A48/B66)

With this argument Kant can show that space as pure intuition explains the possibility of geometrical propositions as synthetic and *a priori*. But he shows this merely by explaining that all of the other possibilities fail. It should therefore be noted that it is a further issue to consider what these forms of intuition are and how they do in fact make geometrical knowledge possible. This will be considered in Chapter 4.

C) Berkeley's idealism and the Transcendental Aesthetic

We now turn to Kant's treatment of Berkeley in the second edition of the *First Critique*. Kant's *Refutation of Idealism* that was added to the B-edition of the *First Critique* is perhaps surprisingly not directed against Berkeley. Instead it is against what Kant calls Descartes' "problematic idealism" (B274). Kant instead labels Berkeley's idealism as "dogmatic idealism" (B274). About this ground for this kind of idealism he says that it "has been undercut by us in the *Transcendental Aesthetic*" (B274).

One is therefore left to wonder whether it is the metaphysical presuppositions underlying Berkeleyan idealism or the consequences of taking space to be merely empirical that is undercut by means of Kant's *Transcendental Aesthetic*? In answering this question I think we are confronted with a genuine problem. The *Transcendental Aesthetic* does not supply sufficient material to do either.

In the early treatment of Berkeley we saw that Kant took him to be an idealist and a kind of Leibnizian. Kant has presented two kinds of arguments against the Leibnizian relational view of space in the *Transcendental Aesthetic*. Firstly, according to the *Elucidation*, the Leibnizian view is forced to hold (contrary to what Leibniz believed) that geometry is an empirical science. Secondly, in the *General Remarks* the "Leibnizian-Wolffian philosophy" is taken to have a theory of reality which implies, as Leibniz was well

aware, that bodies are distorted representations of reality. It is clear that the argument against the “Leibnizian-Wolffian philosophy” does not apply to Berkeley. Berkeley would immediately reject the doctrine that the sensible is a confused representation of what is intelligible. This is most clearly stated in the following passages from the *Three Dialogues* that I already quoted in Chapter 1.1A and that are worth recalling again.

[...] those immediate objects of perception, which according to you, are only appearances of things, I take to be the real things themselves. (*Three Dialogues*, D3: 244)

[...] if by *material substance* is meant only sensible body, that which is seen and felt (and the unphilosophical part of the world mean no more) then I am more certain of matter’s existence than you [Hylas], or any other philosopher, pretend to be. (*Three Dialogues*, D3: 237)

Berkeley completely lacks the conception of a three tier structure of reality on which Kant’s metaphysical criticism of Leibniz depends. In particular, in the passages just quoted, he rejects the idea that bodies are confused representations of an underlying reality.

It seems that what remains from the *Transcendental Aesthetic* is Kant’s claim that Berkeley must hold the undesirable view that geometrical principles are inductive. This argument initially seems very promising. For Berkeley actually tried to develop an entirely empirical kind of geometry where our knowledge of spatial properties comes through experience (as we will see in Chapter 5.1). However, Berkeley later rejected this theory of geometry and seemed to concede to Kant that geometry is an *a priori* science. The question is then whether Berkeley’s conception of space was consistent with this view on the status of geometrical knowledge (and so, it seems, is a transcendental idealist view) or whether he sticks with the Leibnizian conception of the two top tier aspects of reality (physical objects and space). To settle this issue we must, contrary to Kant’s suggestion, look beyond the *Transcendental Aesthetic*. We must both consider Berkeley’s own writings on the nature of space and its relation to geometrical knowledge and we must consider what Kant says about Berkeley elsewhere, i.e., in the *Prolegomena*.

We have seen how Kant argues against transcendental realist conceptions and for his transcendental idealist conception of space in the *First Critique*. I have concluded, first, that Kant’s metaphysical argument against the Leibnizian concept of appearance is ineffective against Berkeley. If Kant wants to say that for Berkeley outer object and space itself is somehow unreal this must be argued for in a different way. Kant does have an argument

against the metaphysical structure of Berkeley's philosophy. In Section 2 I will explain how I understand this criticism. Secondly, we have seen that Kant's main argument for the transcendental idealist conception of space is that it is the only way to account for the possibility of geometrical constructions applying to objects of outer sense. In order to see what is unique in Kant's criticism against Berkeley we will then turn to the *Prolegomena*, which includes Kant's fullest statement on his disagreement with Berkeley.

1) Kant's arguments against idealism in the *Prolegomena*

The *Prolegomena* marks a new step in Kant's engagement with Berkeley, one that sets it apart from the criticisms by various authors during the preceding 50 years and also apart from Kant's previous understanding of him including the conception presented in the *Metaphysik Mrongovius*. The extensive defence of transcendental idealism and the felt need to distinguish it from Berkeley's philosophy was no doubt a reaction to the objections put against the *First Critique* in the *Göttingen Review*, as Kant explains in the *Appendix*. Kant answers three different charges put against the transcendental idealism that he expounded in the first edition of the *First Critique*. In the course of this defence he criticises a variety of other forms of idealism, in particular dogmatic idealism, and Berkeley is now the only dogmatic idealist mentioned by name. The three objections that are relevant here are firstly that Kant's statement that all bodies are appearances and not things in themselves is manifest idealism (in *Remark II*), secondly, that Kant's thesis that space and time are merely subjective forms of sensibility reduces the sensible world to mere illusion (in *Remark III*), and thirdly, that Kant's transcendental idealism is the same as Berkeley's idealism (in the *Appendix*). These three passages were most probably written after the *Göttingen Review*¹⁷ and are all generally taken to be critical of Berkeley (see Beiser, 2002: 94ff).

In this chapter I will consider Kant's arguments in a more critical fashion than I did in the first two sections. There my task was merely explanatory; I wanted to understand the

¹⁷ According to Hatfield (2002: 33) Hamann reported on the 11 of January, 1782 that the *Prolegomena* was projected to be completed in time for Easter the same year. The *Göttingen Review* was published a week later in January and as a consequence Kant was delayed because he wanted to reply to the recently published criticisms. As Hatfield (2003, 34) notes there has been significant controversy concerning what parts of the *Prolegomena*, if any, Kant wrote before the *Göttingen Review*. Hamann's report indicates that Kant had indeed started the work before the review and the explicit reference to the *Göttingen Review* in the *Appendix* clearly shows that this part was written after it. The status of *Note II* and *Note III* is less clear. It is generally assumed that both notes were written after the review because they both attempt to refute Berkeley. I will argue that only *Note III* is directed against Berkeley. Yet I do not wish to dispute that *Note II* was written after the review because, like *Note III*, it is not very well structured as an argument against Berkeley and therefore has the impression of being somewhat rushed. Also, they are 'Notes' added to the main text and not part of the main body of the text.

development of Kant's view of Berkeley, not assess it. But the analysis in this section and the next will set the task for the rest of this work which is not merely to see how Kant criticised Berkeley but to evaluate the success of that undertaking. Therefore it will become important to assess the relevance of Kant's arguments against Berkeley in order to determine what arguments are worthy of being investigated throughout this thesis. I will show that the first of these passages was not intended as an argument against Berkeley, that the second is directed against Berkeley but the argument is confused because of its clear mischaracterisation of Berkeley and the way he differs from Kant. Only the third passage seems to be genuinely directed against Berkeley, and the details of this argument, as well as the new argument against Berkeley in the second edition of the *First Critique* will be investigated in some detail.

A) The break between the Metaphysik Mrongovius and the Prolegomena

The *Metaphysik Mrongovius* lectures were given less than a year before the publication of the *Prolegomena*. It could then be expected that Kant presents the same kind of argument against Berkeley in both these documents. In this sub-section, however, I will argue that on the contrary Kant has a quite different view of Berkeley in the latter work.

In *Note II* of the *First Part* of the *Prolegomena* Kant puts forward an argument against idealism that is very similar to what he says in the *Metaphysik Mrongovius*. He claims that idealism is the view that there are only thinking beings and that all that is perceived in intuition is merely representations in the thinking beings with no external object as correlate (*Prolegomena*, 4: 288-9). So the idealist is presented as claiming that only our minds and their creations exist. Kant concedes that he takes all the properties of outer things, both primary and secondary qualities, to belong only to the appearance of the thing and not to the thing in itself. (*Prolegomena*, 4: 289). But this does not show that the outer object does not exist as such, but only that we know it as it appears through the senses and not as it is in itself. Kant explains that, in contrast to idealism, his own view is that the objects of our senses exist outside us in space, only we know them not as they are in themselves but only as appearances. This, he maintains, is the very opposite of idealism. (*Prolegomena*, 4: 289). In Kant's words,

There are things given to us as objects of our senses existing outside us, yet we know nothing of them as they may be in themselves, but are acquainted only with their appearances, i.e., with the representations that they produce in us because they affect our senses. (*Prolegomena*, 4: 289)

There is a longstanding controversy about this and other pronouncements concerning the thing in itself. The main question is whether the thing in itself is an entity distinct from the appearance (the ontological reading of the thing in itself) or if there is only one object that is considered in two different ways, i.e., intuited as appearance and thought as thing in itself (the two aspects reading). The quote above seems to be open to both interpretations, depending on whether the “they” that produce the representations in us refers to “objects of our senses existing outside us” or to ‘things in themselves’

Now I do not want to go into this issue in any detail here¹⁸. With regard to this particular passage I am sympathetic to Beiser’s (2002: 95-6) rather bleak take on Kant’s argument that on both interpretations of the thing in itself the argument fails to distinguish his view from Berkeley’s. According to Beiser, if Kant is taken to present the thing in itself as an independently existing object then this will bring with it the unwanted idea of it as the cause of experience that “affect our senses”. This would be a dogmatic metaphysical claim rather than one informed by Kant’s critical philosophy. This would go against Kant’s claim to refute Berkeleyan idealism from the standpoint of transcendental idealism.

If, on the other hand, Kant takes the thing in itself to be a mere possibility of thought this does not seem sufficient to distinguish his view from the kind of idealism he is objecting to. For the idea that Kant presents here is that we are affected by things that are outside us (in space), not that things that are outside us (considered as non-spatial noumenon) are conceivable. What Kant seems to want to put forward as unique to his view is that he does not need to say that the appearance is all that there is to the thing. He wants to leave room for a conception of the thing independent of sensible conditions. The difference between Kant and Berkeley is, on this view, not a difference of what they affirm about the thing that affects us, but only about the possibility of the thing being thought about in a different way. For this reason Beiser concludes that “in this regard, then, Kant’s differences with Berkeley boil down to little more than a flimsy and pale possibility.” (2002: 97)

But I would go further than Beiser and deny even that Kant has managed to identify a difference, this “flimsy and pale possibility”, between him and Berkeley. Rather, this line of argument is wholly insufficient because Berkeley too allows for the possibility or actuality

¹⁸ For a general and informative discussion see Allison (2004, Chapter 3)

(depending, in an analogous way to the two interpretations of Kant, on how Berkeley is read) of things independent of us. We should note firstly that Berkeley denies that primary qualities exist independently of us perceiving them but that this does not detract from the reality of the thing experienced (*Three Dialogues*, D1: 188, 195, 199-200).¹⁹ Secondly, Berkeley sometimes claims that we can speak of things not only as they appear to us but also from a more objective standpoint. At one point he speaks of external affection and explains that things or ideas are not literally “in the mind”.

When I speak of objects as existing in the mind or impressed on the senses; I would not be understood in the gross literal sense, as when bodies are said to exist in a place, or a seal to make an impression upon wax. My meaning is only that the mind comprehends or perceives them; and that it is affected from without, or by some being distinct from itself.” (*Three Dialogues*, D3: 250)

So Berkeley appears not to be an idealist in the sense that Kant understands it in *Note II*, that is, as a ‘subjective idealist’ who does not allow for anything distinct from one’s own mind affecting our senses. For Berkeley freely admits that the mind is “affected from without” when it perceives. In fact, when pressed on this issue²⁰, Berkeley claims that there is a twofold sense of existence, appearances (or ‘sensible ideas’ or ‘things’ in Berkeley’s terminology) and some kind of ground for these things, ‘archetypes’ in the mind of God. This becomes clear when Philonous says, “What would you have! do I not acknowledge a twofold state of things²¹, the one ectypal or natural, the other archetypal and eternal? The former was created in time; the latter existed from everlasting in the mind of God.” (*Three Dialogues*, D3: 254)

So if *Note II* is intended to distinguish Kant’s brand of idealism from Berkeley’s, then the philosophical merit of this argument is extremely doubtful²². In fact, I believe that this is enough to question whether this argument is intended against Berkeley at all. Kant’s

¹⁹ Berkeley makes the same point in a number of other works as well, e.g., *Principles*, §9-10. But since the *Three Dialogues* is the work that Kant was most likely to have read I will refer to it when considering Berkeley’s position in this chapter.

²⁰ Not only when Hylas demands an answer from Philonous but also when Berkeley himself is repeatedly asked by Samuel Johnson on his position on this matter. Berkeley’s eventual response is in the letter dated March 24, 1730 (*Works*, 2: 292).

²¹ When Berkeley speaks of a “twofold state of things” he seems to be as ambiguous as Kant when the latter sometimes speaks of things in themselves being entities distinct from the appearance and sometimes as being the same things seen in different ways.

²² I agree with Allison’s cautionary approach when he says about the Berkeleyan distinction between the human and the divine intellect and their corresponding ideas that “the translation of Berkeley’s distinction into a Kantian framework can be viewed as a distortion of Berkeley’s intent” (Allison, 1973a: 61). An attempt at such a translation is beyond the scope of this thesis.

approach to this charge of idealism makes use of the argument that he employs as his criticism of Berkeley's philosophy in the *Metaphysik Mrongovius* (as we saw in Chapter 1.2B). It is curious, and I think, significant that Kant had presented this criticism explicitly against Berkeley in his lectures, yet less than a year later, outraged by his critics comparing his views to Berkeley's, he omits that name in this passage. I take the explanation for this to be that Kant no longer saw Berkeley primarily as a metaphysician who dogmatically denied the existence of bodies. Instead, being in possession of a more correct translation of the *Three Dialogues*, and being most probably familiar with Berkeley's extensive argument against absolute space in *De Motu* (§52-7) Kant came to see Berkeley chiefly as a philosopher of science that was critical of the concepts of space and body that underlie Newton's and Locke's natural philosophies. Here Berkeley's position is problematic because his *view on space* has the *consequence* of turning bodies into illusions and nonentities. It is not problematic because of a direct denial of the coherence in the concept of body.

To see that Kant turns away from the interpretation of Berkeley as a dogmatic denier of the existence of body, the *Metaphysik K₂* lectures from the early 1790s are instructive. Here Kant explicitly states that Berkeley does not deny the existence of bodies. He acknowledges "Berkeley wanted to say bodies as such are not things in themselves, but he expressed himself wrongly, and therefore he appears to be an idealist." (28: 770) This was written about ten years later than the *Prolegomena*, but in the latter work there are signs that Kant had already changed his approach to Berkeley.

The sense in which Berkeley expressed himself wrongly was in his usage of the word 'idea'. In a long passage in the *Transcendental Dialectic* Kant explains that he intends to use the word 'idea' much in the same way as Plato did (A312-20/B368-77). Towards the end of this passage Kant puts forward an unusually emotional appeal to the retention of this sense of the word,

[...] I entreat those who take philosophy to heart (which means more than is commonly supposed) [...] to take care to preserve the expression **idea** in its original meaning, so that it will not henceforth fall among the other expressions by which all sorts of representations are denoted in careless disorder, to the detriment of science. (A319/B376)

He then goes on to explain how he understands the term idea within his schema of representations.

A concept is either **empirical** or a **pure concept**, and the pure concept, insofar as it has its origin solely in the understanding (not in a pure image of sensibility), is called *notio* [notion]. A concept made up of notions, which goes beyond the possibility of experience, is an **idea** or a concept of reason. Anyone who has become accustomed to this distinction must find it unbearable to hear a representation of the colour red called an idea. (A320/B377)

So by ‘idea’ Kant means a pure concept of reason that goes beyond experience. In Chapter 3 we will see that this is how Kant understands his notion of ‘absolute space’. But for now it will suffice to note that a sensation like a colour is therefore far from being an idea for him. But this is one of the senses in which Locke (*Essay*, Book 2, Ch.1, §2) and Berkeley (most famously in *Principles*, §1) used the term. Berkeley went further and equated ‘idea’ with ‘thing’ (*Three Dialogues*, D3: 235-6, 262). He was well aware that he used the term ‘idea’ in an unusual and wide sense, i.e., as equivalent to sensible thing and anything immediately sensed (such as the colour red) or thought about. As he explains,

I own the word *idea*, not being commonly used for *thing*, sounds something out of the way. My reason for using it was, because a necessary relation to the mind is understood to be implied by that term; and it is now commonly used by philosophers, to denote the immediate objects of the understanding. (*Three Dialogues*, D3: 235-6)²³

So Berkeley is happy to use the term idea in a new way, and to mean by it not a pure concept of the understanding but as a ‘thing’, i.e., a sensible object.

We can then wonder whether Kant was already aware of this ‘improper’ usage of the term. I believe, as I will now show, that there are indications that are consistent with Kant already having grasped this aspect of Berkeley’s philosophy. And if he had, then a new kind of argument is required against Berkeley and Kant would already have recognised that the argument against idealism in *Note II* is ineffective in that regard.

In the *Appendix* Kant explains that he takes Berkeley to be someone who, like all genuine idealists, denies the reality of the external, sensible world. Berkeley is said to hold that only ideas, not bodies are real.

²³ See also *Principles*, §1 for a (in)famous statement of Berkeley’s wide sense of the term ‘idea’ and the term ‘object of knowledge’.

The thesis of all genuine idealists, from the Eleatic School up to Bishop Berkeley, is contained in the formula “All cognition through the senses and experience is nothing but sheer illusion, and there is truth only in the ideas of the pure understanding and reason. (*Prolegomena*, 4: 374)

This seems to suggest that Kant understood Berkeley to be using the term idea in a way similar to Plato. If this is the case, it would be natural for Kant to believe that Berkeley adhered to “genuine idealism” if he was understood to use the term ‘idea’ in its traditional sense. But, as will be clear when I consider the *Appendix* in more detail below, Kant thinks this mystical standpoint follows Berkeley’s conception of space and not directly from Berkeley taking all knowledge to stem from pure concepts. Therefore it appears that Kant is now aware of Berkeley’s uncommon and on Kant’s view plain wrong usage of the term ‘idea’. If this is the case then Berkeley is a rather different kind of idealist than Kant thought him to be in the *Metaphysik Mrongovius*. He is not someone that dogmatically denies any notion of outness and takes refuge in purely intelligible concepts because of an alleged contradiction in the concept of material substance. Rather, he is someone who wants to say that “bodies as such are not things in themselves” but he expresses himself ‘wrongly’. So instead Kant introduces the new criticism that Berkeley saw nothing *a priori* in the representation of space. Then, in the second edition of the *First Critique* Kant again emphasises that it is the incorrect conception of space that makes Berkeley an idealist.²⁴

B) Note III: Kant’s first reply to the Göttingen Review

This becomes clear when we consider the second passage where Kant defends his transcendental idealism, i.e., *Note III*. Kant here responds to the objection that “through the ideality of space and time the whole sensible world would be transformed into sheer illusion.” (*Prolegomena*, 4: 290) So this is the objection that if space and time are mere subjective forms of intuition then nothing that is sensed is intrinsically real or imaginary, and

²⁴ In *Siris* Berkeley asserts that “Intellect and reason are alone sure guides to truth” (§264) This might suggest the following thought: Berkeley radically changed his philosophical view in *Siris* from believing in the veracity of the sensible to believing that only what is intelligible is knowable; and that it is the Berkeley *Siris* that Kant is exclusively concerned with refuting. A detailed analysis of *Siris* and Berkeley’s possible change of view there is beyond the scope of this thesis. I will here merely make two comments on this suggestion. Firstly, I take Berkeley’s point in §264 and the similar sections 294, 301-5, to be that the sensible by itself is not sufficient for truth and knowledge (see §253, §305) and to emphasis against the Cartesians that the sensible and the intelligible are distinct (see §266, §303, §305). Therefore it is highly questionable whether one should attribute the view of “all genuine idealists” to Berkeley even in his latter work. Secondly, as I will argue below Kant’s dispute with Berkeley in the *Prolegomena* concerns the nature of space and on this matter Berkeley (see *Siris*, §270-1, 289) merely reiterates the problems with this notion that he presents in the *Principles* and *De Motu* (see Chapter 3, Section 1B).

so there is no criterion for distinguishing between truth and illusion. Kant answers this objection in two steps. Firstly, in 4: 290-2 he argues that the distinction between truth and illusion does not depend on the quality of sensations. Secondly, in 4: 292-4 he argues that taking space and time as belonging only to appearances is in fact the only way to avoid falling into the view that all experience is mere illusion. With regard to the first step, Kant most probably had the following passage from the *Göttingen Review* in mind.

According to the author, experience, contrary to mere fancy and dreams, is [composed] of sensible intuitions combined with concepts of the understanding. We admit, however, that we do not comprehend how the distinction of what is actual from what is imagined and merely possible, a distinction that is generally so easy for human understanding, could be sufficiently grounded in the **mere** application of concepts of understanding without assuming **one** mark of actuality in sensation itself. (Sassen, 2000: 42)

Already in the *Metaphysik Herder* we saw that Kant held sensible qualities such as vivacity or distinctness to be inappropriate as criteria capturing some mark of actuality in real things. The reason for this is that the fantastic things in dreams or illusions can sometimes be more vivid than ordinary experience. For Kant, the difference between dream and reality (*Prolegomena*, 4: 290); and likewise the difference between a mere appearance and reality (*Prolegomena*, 4: 291), lie not in the origin of the representation, but in the use that the understanding makes of it. An example of the latter case is that the planets appear to move sometimes progressively and sometimes retrogressively (*Prolegomena*, 4: 291). In the observation of the appearances there is neither truth nor falsity, the planets really appear to move sometimes in one way sometimes in another. However, only one of these apparent motions is an objectively correct description. Which kind of motion is correct requires judgements that are based on how and to what extent the different motions are consistent with our knowledge of their distance from each other and motion relative to each other and also, famously, whether we take ourselves to be in motion or not. So, it is up to the understanding to bring coherence to the apparently conflicting sensations by constructing a fitting nexus of judgements.

Given Kant's characterisation of Berkeley's idealism in the *Metaphysik Herder*, it seems natural that Kant is here distinguishing his view from Berkeley's. But this would not be consistent with the hypothesis that Kant knew the *Three Dialogues* well. For Hylas, Berkeley's opponent in the *Three Dialogues*, puts forward a view strikingly similar to the

view that Kant is rejecting here. Philonous' response is to say that the question of truth and error in sense perception lies not in what is perceived, but in the judgements made on the basis of the perception. Strikingly, he also draws on the same example by bringing up the case of deciding which planets are in motion as an example of this.²⁵

But his mistake lies not in what he perceives immediately and at present (it being a manifest contradiction to suppose he should err in respect of that) but in the wrong judgement he makes concerning the ideas he apprehends to be connected with those immediately perceived: or concerning the ideas that, from what he perceives at present, he imagines would be perceived in other circumstances. The case is the same with the Copernican system. We do not here perceive any motion of the earth: but it were erroneous thence to conclude, that in the case we were placed at a great distance from that, as we now are from other planets, we should not then perceive its motion. (*Three Dialogues*, D3: 238)

Kant and Berkeley accordingly have the same view on how to distinguish between mere appearances and real things, i.e., by drawing a sharp distinction between the things sensed and the judgement in accordance with rules governing the appearances and then claiming that only in the latter is there either truth or illusion. I conclude from this that Kant is not intending to argue against Berkeley in the first part of *Note III*.

Instead, Kant sensibly enough presents his argument against Berkeley only at the second step of his argument in *Note III*. In the latter part of the *Note* Kant replies to the charge that by making space and time into merely subjective forms of intuition, and by consequence sensory representations into mere appearances, he therefore ascribes a thoroughgoing illusion to nature (*Prolegomena*, 4: 293). The idea of this objection is that Kant turns things, the "sensory representations", into "mere appearances" because they are not things as they are in themselves but only things as they appear through the forms of intuition peculiar to human beings. So things in space would not be real because there is nothing real at their foundation, i.e., something in itself, instead there is only a subjective way of experiencing these things. From the point of view of 'common sense' (the position of Beattie, Reid and Feder, among others) Kant would be seen to turn actual things into mere representations. If this objection was correct then Kant would be an adherent of what he here

²⁵ This will be less surprising when we see in Chapter 3 that their views on how to determine true motion in mechanics are virtually identical.

calls “visionary idealism”. More precisely, this would make him adhere to “the mystical visionary idealism of Berkeley” (*Prolegomena*, 4: 293).

Kant’s response to this objection is to claim that our knowledge of things and so the possibility of a distinction between truth and illusion is possible, and only possible, concerning things as they appear to us and not as they are in themselves. Kant gives two arguments for this (*Prolegomena*, 4: 292). These are compressed versions of the “direct” and “indirect”²⁶ arguments for the transcendental ideality of space and time in the *Transcendental Aesthetic* A47-9/B64-6 and in the *Antinomies* A506-7/B534-5, respectively.²⁷

As G. Miller (1971) and G. J. Matthey (1983) have shown it is Leibniz’ monadology and not Berkeley’s idealism that Kant targets in the *Second Antinomy*. They both claim that according to Kant it is Leibniz’ position that entails something contradictory in the concept of matter (G. Miller, 1971: 301, G. J. Matthey, 1983: 166).²⁸ This is supported by my argument that Berkeley would reject a monadic ontology in Section 1C. What remains is then the direct argument for transcendental idealism. In *Note III* Kant explains that the difference between transcendental idealism and dogmatic idealism is that the former concerns not the existence of things, but the sensory representation of things. However, as we have seen Berkeley does not deny the existence of sensible things, he only holds that sensible things are mind dependent. So it appears that Kant does not provide the reader with a clear argument for how his transcendental idealism is distinguished from Berkeley philosophy.

²⁶ Kant give these names to the arguments at A506/B534

²⁷ The direct argument concerns the explanation of the possibility of our *a priori* knowledge of mathematics and geometry in particular. Kant claims that only if space and time are merely subjective forms of sensibility can we explain how we can have *a priori* knowledge of geometry that applies to all objects of the sensible world. This argument was considered in Section 1B. The indirect argument concerns the resolution of the mutually contradictory but apparently valid arguments concerning the cosmological idea of the sensible world. If we take representations to be things in themselves, then we fall into these antinomies of reason, if we take them to be appearances in the sense specified by Kant, the contradictions vanish.

²⁸ The position attributed to Leibniz in the second *Antinomy* is that,

all the things in the world are simple beings, that composition is only an external state of these beings, and that even though we can never put these elementary substances completely outside this state of combination and isolate them, reason must still think of them as the primary subjects of all composition and hence think of them prior to it as simple beings. (A436/B464)

Here Leibniz is characterised as claiming that in reality there are only simple beings. The contradiction in the concept of matter would then be connected with the fact that matter is essentially extended and therefore composite. Bodies then have a property that is incompatible with one of the properties of real things, and so there is something essentially illusory about bodies.

C) *The Appendix: Kant's second reply to the Göttingen Review*

However, Kant does provide precisely this in the *Appendix*. This gives Kant's criticism the sharpness that was lacking in *Note III*. The *Appendix* is Kant's explicit response to the *Göttingen Review* and it occasions a more structured and thorough discussion of how he understands his transcendental ideality of space as opposed to Berkeley's philosophy. It is here that Kant poses a really grave and forceful objection to Berkeley, worthy of a detailed study.

Kant begins by stating that the author(s) of the *Göttingen Review* has misunderstood the term 'transcendental', and accordingly the meaning of Kant's 'transcendental idealism'. The reviewer translates transcendental idealism as 'higher idealism', a kind of idealism that "surpasses all experience" (*Prolegomena*, 4: 373n). But as Kant points out, this is to conflate the term 'transcendental' with the term 'transcendent'. Transcendental refers to that which makes experience possible whereas transcendent refers to what is beyond all experience. The reviewer therefore takes Kant's kind of idealism with regard to space to mean that we can know of things that are not connected with the cognition of experience at all; and so we can have knowledge of the super-sensible. Kant emphasises that there are no such mystical tendencies in his theory of experience, and in doing so he contrasts his view specifically with Berkeley.

According to Kant's own view cognition "of things out of mere pure understanding or pure reason is nothing but sheer illusion, and there is truth only in experience." (*Prolegomena*, 4: 374) Whereas the view of idealism proper "from the Eleatic school up to Bishop Berkeley, is contained in this formula: "All cognition through the senses and experience is nothing but sheer illusion, and there is truth only in the ideas of pure understanding and reason." (*Prolegomena*, 4: 374)

The following question then arises: How did the reviewer take what are really two opposite viewpoints to be the same? Kant suggests that it is the rejection of the idea that space is something in itself by both Kant and Berkeley that led to this supposition.

Space and time, together with everything contained in them, are not things (or properties of things) in themselves, but belong instead merely to the appearances of such things; thus far I am of one creed with previous idealists. [i.e., "all genuine idealists, from the Eleatic school to Bishop Berkeley"]. (*Prolegomena*, 4: 374)

Kant begins by conceding that he has a common starting point with Berkeley which is opposed to Newton's view, in understanding what space is not. That is, they both take space to belong to appearances and not to things in themselves. However, this similarity regarding a negative thesis about space means very little. For according to Kant, his and Berkeley's respective positive accounts of space are radically different. Kant claims that Berkeley understands space only as something that is derived from perception, whereas Kant's own view is that space is a pure intuition that first makes outer experience possible.

Berkeley, viewed space as a merely empirical representation, a representation which, just like the appearances in space together with all the determinations of space, would be known to us only by means of experience or perception; I show, on the contrary, first: that space (and time as well, to which Berkeley gave no attention), together with all its determinations, can be cognized by us *a priori*, since space (as well as time) inheres in us before all perception or experience as a pure form of our sensibility and makes possible all intuition from sensibility, and hence all appearances. From this it follows: that, since truth rests on universal and necessary laws as its criteria, for *Berkeley* experience could have no criteria of truth, because its appearances (according to him) had nothing underlying them *a priori*; from which it then followed that experience is nothing but sheer illusion, whereas for us space and time (in combination with the pure concepts of the understanding) prescribe *a priori* their law to all possible experience, which law at the same time provides the sure criterion for distinguishing truth from illusion in experience. (*Prolegomena*, 4: 374-5)

The shared rejection of absolute space together with the different positive accounts of the nature of space leads to different conclusions regarding the status of the objects of experience. If space together with the outer appearances that it contains is known only through perception, no necessary or universal rules regarding these things can be established. But according to Kant, experience requires these characteristics of its rules if there is to be any truth in it. Therefore, the view regarding space that is attributed to Berkeley leads to the position that is characteristic of the dogmatic idealist, i.e., that "experience is nothing but sheer illusion." (*Prolegomena*, 4: 375) For Kant, on the other hand, space is characterised as a pure intuition and this allows for necessity and universality and hence true existence to experience.

It is this fault in his conception of space that ultimately makes Berkeley a denier of truth in the realm of experience, despite all his claims to the opposite. It is also this conception of space that, on Kant's view, forces Berkeley into the "mystical visionary idealism" referred to in *Note III*. For a consequence of Berkeley's conception of experience

(i.e., that all spatial characteristics are known by acquaintance with objects through sensation) is that, given that there are *a priori* cognitions such as the principles of geometry, these must be accounted for by some other source than knowledge that is acquired by the senses. So Berkeley is forced, Kant thinks, to appeal to the contemplation of purely intelligible knowledge of reality that is divorced from any sensible element. Berkeley, like all other idealists falls into this view “because it never occurred to anyone that the senses themselves might intuit *a priori*”. (*Prolegomena*, 4: 375n) But this is precisely what Kant’s theory of space states.

One of the great discoveries of the Critical philosophy, and what distinguishes Kant’s conception of outer experience, is on Kant’s view that there is an *a priori* structure to experience that is more lawful than mere sensible marks such as vivacity and clarity. It is a structure that lends necessity and universality to experience without appeal to a super-sensible kind of intuition. It is this that allows his picturesque characterisation of transcendental idealism. “My place is the fertile *bathos* of experience” (*Prolegomena*, 4: 372n).

The view Kant attributes to Berkeley in the *Prolegomena* can be represented in the following steps:

- 1) Space is not a thing in itself
- 2) So space belongs only to appearances
- 3) The senses cannot intuit *a priori*
- 4) So space is merely empirical
- 5) Only what is known *a priori* can have the marks of universality and necessity
- 6) So nothing about appearances is universal and necessary
- 7) Truth requires universal and necessary laws as its criteria
- 8) So there is no distinction between truth and illusion in appearances

This is what I term Kant’s ‘epistemological’ argument against Berkeley’s conception of space. It is epistemological because it turns on the distinction between two kinds of knowledge, empirical and *a priori*. Kant asserts, with Berkeley, steps (1) and (2). Their point of departure comes at step (3). Kant claims to be the first to have discovered, in the *Transcendental Aesthetic*, that the senses can intuit *a priori* (the paradigm for this is the capacity to give oneself an object corresponding to a geometrical concept wholly *a priori*) and therefore he can argue that space is an *a priori* representation while at the same time

asserting that only appearances have spatial properties. Conversely, for Berkeley, as Kant understands him, space is a merely empirical representation that is only known through experience or perception. If Berkeley is an empiricist about space and holds that we know of space only through experience, then this argument shows a genuine difference between Kant's and Berkeley's systems. If Kant is further correct in the view that the science of space consists of synthetic *a priori* propositions, then it follows from this account of Berkeley's conception of space that it is flawed. Berkeley's understanding of our knowledge of space will be examined in detail in Chapter 5.

D) Kant's metaphysical argument against Berkeley's idealism in the second edition of the First Critique

First I will consider the second edition of the *First Critique* and here we find a somewhat different argument against Berkeley. Kant refers to Berkeley twice in the second edition. The first mention is in a section towards the end of the *Transcendental Aesthetic* where he again answers the objection that by allowing space and time to be merely subjective forms of intuition he turns experience into illusion. Kant suggests that this would be Berkeley's view, not his.

[I]f one regards space and time as properties that, as far as their possibility is concerned, must be encountered in things in themselves, and reflects on the absurdities in which one then becomes entangled, because two infinite things that are neither substances nor anything really inhering in substances must nevertheless be something existing, indeed the necessary condition of the existence of all things, which also remain even if all existing things are removed; then one cannot well blame the good Berkeley if he demotes bodies to mere illusion (B70-1)

Here Berkeley is again presented as seeing the absurdities involved in the absolute conception of space. And again Kant claims that this would lead Berkeley to take the sensible world to be mere illusion. But what is not clear is why the latter follows from the former. Of course, we could suppose that we are meant to refer to the *Appendix* in the *Prolegomena* here and simply add points (2) – (7) of the epistemological argument to get the conclusion Kant is after. But when we turn to the second passage in the second edition of the *First Critique* that mentions Berkeley we find a different kind of argument.

Berkeley [...] declares space, together with all the things to which it is attached as an inseparable condition, to be something that is impossible in itself and [...] therefore also declares things in space to be merely imaginary. (B274)

[Berkeley's idealism] is unavoidable if one regards space as a property that is to pertain to the thing in itself; for then it, along with everything for which it serves as a condition, is a non-entity. (B274)

The first part here is merely a restatement of B70-1 and steps (1) and (8) in the epistemological argument. However, in the second part Kant says something different from the aforementioned points (2) – (7). Now the second step is that space is something that, if it is to be anything at all, must belong to things in themselves. Therefore, since in experience things appear to be in space, but space does not exist, this appearance is a mere illusion. The conclusion is the same, that Berkeley takes appearances to be illusion but now the reason for that is different. The view Kant attributes to Berkeley can be represented in the following steps:

- 1) Space does not belong to things in themselves
- 2) The only way to understand space is as something belonging to things in themselves
- 3) So space is nothing, a non-entity
- 4) Things that appear to be in space are therefore also non-entities
- 5) So bodies are illusory

I term this the 'metaphysical argument' because what is central here is an existential claim, i.e., that space does not exist. The inability to conceive of space as anything but a thing in itself (2) leads to the claim that space does not exist (3), and because of this bodies, which appear to be in space, must be mere illusions (4 & 5).

The position outlined in this argument is in several ways more extreme than the position attributed to Berkeley in the *Appendix*. Space is not taken to be merely empirical but to be non-existent. Things in space are not even taken to be illusions but to be non-entities. Indeed, the two positions that Kant attributes to Berkeley seem incompatible. In the epistemological argument space is an empirical concept whereas in the metaphysical argument space is nothing at all, not even an empirical entity. However, I hold that in these two arguments Berkeley should be taken to claim the same thing, but from two different

points of view, first from an epistemological or scientific point of view, second, from a dogmatic metaphysical point of view. In the *Prolegomena* Berkeley is taken to hold that space is an abstraction from objects of experience. It is a human construction that can perhaps be a useful tool for scientific enquiries. But on Kant's view, this is not sufficient for explaining how we can have *a priori* knowledge in the sciences and so Berkeley's view entails that things in space cannot be known in a scientific way. In the *First Critique* Berkeley is taken to be making the point that such an abstraction has no basis in reality. As a metaphysician Berkeley must, strictly speaking²⁹, hold that space is nothing because it is not a thing in itself. In so far as private, unextended, ideas appear to be in space they are therefore illusory.

With this investigation of Kant's criticism of Berkeley and his general strategy for defending his transcendental idealist conception of space, I can now outline how to answer the main question of this thesis: is Kant's rejection of Berkeley's idealism valid? We have seen that Kant sees the main problem with Berkeley's view as lying with his conception of space. As with Leibniz and Newton, Kant sees both a metaphysical and an epistemological problem with Berkeley's view.

The metaphysical argument is unique to Berkeley and substantively different from the problems of the same kind that faces Leibniz and Newton. The Leibnizian problem applies only to the view that reality is essentially intelligible and that what is sensible is less real. The Newtonian problem only arises if one maintains that space is an objective condition for the existence of things in general. We have seen that Berkeley rejects both these views. Instead, Kant's metaphysical argument rests on the allegedly Berkeleyan principle that nothing exists without the mind. Kant holds it as a consequence of this principle that bodies and space itself are mere illusions. I will consider the validity of this argument in Chapter 3.1

There is also a different kind of argument it could be thought that Kant presents against Berkeley. It does not strictly speaking fit the description of the metaphysical or epistemological argument. But in one sense it can be seen as a continuation of the line of thought that constitutes the metaphysical argument and I will be dealing with it immediately after having considered the metaphysical argument. Kant's criticism of Berkeley in the second edition of the *First Critique* can be seen to attack the *principle on which Berkeley's rejection of absolute space depends*, i.e., that absolute space is an impossibility because it cannot be perceived. But it can also be seen to attack the *conclusion that follows from*

²⁹ Berkeley himself famously and repeatedly distinguishes between what is useful for science or for everyday life and what is strictly speaking the case. See *Three Dialogues*, D3: 245-6 and *De Motu*, §71-2.

Berkeley's rejection of absolute space, i.e., that only relative and empirical space exist. Since Berkeley's appropriation of Newtonian science makes use only of space conceived of as relational it could be that that Kant would hold this to be a fault in Berkeley's philosophy of space. Instead, Berkeley should, with Kant, have realised that space is in the first place a pure intuition and therefore that an appropriation of Newtonian science is seriously flawed if use is not made of this notion of space. Because of Berkeley's reliance on a merely relational conception of space in his dispute with Newton Kant has a reason to believe that Berkeley was thinking within the transcendental realist paradigm of either Newtonian absolute or Leibnizian relative space. This line of argument will be assessed in Chapter 3.2

The epistemological argument is in some respects similar for all three of Kant's opponents. Kant claims that neither Leibniz, Newton nor Berkeley can account for the possibility of synthetic *a priori* propositions that are true of objects of outer sense because of their transcendental realist conceptions of space. There are, however, some differences in their transcendental realist positions. According to Kant, Leibniz should hold that geometry is an empirical science as a consequence of his merely empirical conception of space. Newton could hold that geometry should be a synthetic *a priori* science, but on the assumption that space is objective he cannot make intelligible how we can have this knowledge. On Kant's view Berkeley also took space to be a merely empirical representation that "just like the appearances in space together with all the determinations of space, would be known to us only by means of experience or perception." (*Prolegomena*, 4: 374) For all three views the problem is that they cannot explain how the senses can intuit *a priori*, e.g., how an object that we construct in imagination or on paper can correspond to an outer object. For Leibniz and Berkeley the problem is that knowledge relating to the senses is all empirical, for Newton the problem is how what we put into the construction (which might well be *a priori*) can also apply to things in general (i.e., in space on the absolutist assumption). This argument will be considered in Chapter 5.

Chapter 3: Berkeley and Kant on absolute space

There is no doubt that Kant attached far greater importance to the theory of space for his philosophical system than Berkeley did to his. Kant takes the *Transcendental Aesthetic* to be the “organon” for his transcendental philosophy (B63), and together with certain sections of the *B-Deduction* Kant gives an extensive account of his conception of the transcendental ideality of space (as we will see in Chapter 4). With regard to Berkeley it is far more difficult to locate a statement on the nature of space and to understand how it fits into his immaterialist philosophy as a whole. For Berkeley, a theory of space is not an integral part of his philosophical system. Instead, what he says about it comes in the context of certain criticisms of Newton’s mechanics at the end of the *Principles* and in *De Motu*.

Nonetheless, this has not inspired any great degree of cautiousness in commentators on Berkeley’s theory of space. The tendency is rather to take it as uncontroversial that he adheres to the view attributed to him in the *Prolegomena* or the *First Critique*, or sometimes both. Further, this is taken to be either self-evident since Berkeley is seen as an ‘empiricist’ or taken to follow from his metaphysical ‘immaterialist’ principles. Without much consideration of what Berkeley actually says about this matter in the *Principles* and in *De Motu* it is assumed that Berkeley either takes space and the things in it to be a non-entity or takes space to be merely empirical.¹

But why shouldn’t they? Considering the metaphysical argument, it seems that extreme as it might be, it also has some initial plausibility. After all, as we saw in Chapter 1.2 Kant (at least in the *Metaphysik Mrongovius*) was aware that Berkeley famously denied the existence of matter and stated that only minds and ideas exist, indeed, this is the cornerstone of Kant’s rejection of the dogmatic idealism of Berkeley and Leibniz in 1781-2. On the basis of this immaterialism we would therefore expect Berkeley to also deny the existence of space and anything outside us and assert only the existence of unextended private ideas in our minds. So Kant’s metaphysical argument could be seen as an extension of Berkeley’s argument against the existence of matter.

This close connection between Berkeley’s metaphysical principle of immaterialism and the nature of space has been made by a number of commentators. H. Allison (1973a) takes Kant’s argument against Berkeley at (B274) (the argument that I have termed the

¹ In this section I will present some examples of the former view. For the latter view, see C. Turbayne (1955: 243), M. Wilson (1971: 472) and R. Walker (1985: 299).

metaphysical argument) to be successful. This is because, according to Allison, Berkeley's argument against absolute space is based on his understanding of the notions of 'sensible' and 'idea'.

He [Berkeley] does [...] criticize the Newtonian conception of absolute space and time in the *Principles*, and in *De Motu* (53) he claims that Newtonian absolute space is a "mere nothing". Thus, Kant is simply pointing to the logical connection between Berkeley's critique of the doctrine of absolute space and his conception of sensible things as empirically ideal "collections of ideas". (1973a: 62)

Allison claims, in accordance with the metaphysical argument, that there is a "logical connection" between Berkeley's immaterialism and his rejection of absolute space. The accuracy of this argument (i.e., the 'epistemological' and 'metaphysical' arguments somehow put together) is, Allison claims, proof that Kant's transcendental idealism is significantly different from Berkeley's philosophy and that Kant had a firsthand knowledge of Berkeley's work (1973a: 63).²

Buroker makes a similar point.

From the standpoint of the empiricist doctrine of ideas, the theory of absolute space is unintelligible. In *De Motu* and the *Treatise Concerning the Principles of Human Knowledge* George Berkeley bases his criticism of the Newtonian theory on the principle that all meaningful ideas of physical phenomena must be derived from perceptions of sensible qualities. Accordingly the only ideas of space and motion that are meaningful, and therefore useful in formulating physical laws, are those defined by reference to particular sensible objects. Thus Berkeley offers as an alternative view a *relational* theory of space and motion. (1981: 14)

On this view we find Berkeley's conception of space in those sections of the aforementioned works in which he argues against Newtonian absolute space and, according to this interpretation, for a relational conception of space. The rejection of the former theory and endorsement of the latter is said to follow from 'the empiricist doctrine of ideas'. So Buroker's sketch of Berkeley's conception of space is an endorsement of the metaphysical argument since she takes Berkeley to base his rejection of absolute space on his

² Though Allison takes the strongest evidence of Kant's knowledge of Berkeley (in particular the *Three Dialogues*) to be found in an unpublished draft to the *Prolegomena* where Kant explicitly criticises Berkeley's notion of archetypes. (Allison, 1973a: 61) If Kant had developed and published this draft or given lectures about it, it would have been worth considering in some detail in this chapter.

immaterialism. Because absolute space is not perceptible it cannot exist. Only particular sensible objects exist and so space and motion are merely abstractions that are useful when formulating physical laws.

To evaluate the validity of the metaphysical argument I will in this chapter consider Berkeley's basis for his denial of the existence of absolute space. I take the two commentators that I have just mentioned to be correct in pointing out that according to Kant's metaphysical argument the incorrect notion of space attributed to Berkeley depends on a presumption about the role of Berkeley's immaterialism for his conception of space. However, I think that it is a mistake to accept this argument precisely because it takes Berkeley's rejection of absolute space to depend on immaterialist principles. Further, I take the strength of the epistemological argument to be that it does not make this presupposition but instead relies on what Kant claims to be revolutionary about his own conception of space.

I will show that Berkeley's criticism of the notion of absolute space does not rely on his denial of matter, and that this is a point Berkeley is quite explicit about. Rather, he argues that the idea of absolute space having no real use within the framework of Newtonian mechanics itself, rather than that absolute space is incompatible with an 'empiricist doctrine of ideas'.

1) Berkeley's rejection of absolute space

As is well known Berkeley was critical of the distinction between absolute and relative motion, space and time. According to him absolute space is useless³ and incomprehensible³ and only relative space exists.⁴ This objection to the Newtonian concepts is a cornerstone of his account of the philosophy of nature in general. He discusses this issue at length in his work on the philosophy of nature *De Motu* (§53-66). It is also the only aspect of the philosophy of nature that gets a thematic treatment in the *Principles* (§110-7). In this section I will give an account of the relation between this rejection of Newtonian 'absolutes'⁵ and Berkeley's principle of immaterialism. I will be contrasting my position to what I take to be the received opinion.

³ See *Principles*, §110-6, *De Motu*, §53-66, *Siris*, §270-1, *Letter to Johnson*, Nov. 25, 1729, §1 & Feb. 5, 1730, §2.

⁴ "As to Space, I have no notion of any but that which is relative." *Letter to Johnson*, Feb. 5, 1730, §2.

⁵ I will use this term in place of 'absolute space, time and motion' as Berkeley does himself in *De Motu*, §64.

A) *The 'repression hypothesis' and Berkeley's two principles of idealism and immaterialism*

The traditional way of interpreting Berkeley's thinking on the philosophy of nature goes at least as far back as Luce and which is still dominant today. On this view Berkeley's criticism of contemporary theories of nature depends on his rejection of materialism. Thus *De Motu*, Berkeley's treatment of natural science, is seen by Luce to be immaterialism applied to natural science. He claims that "it is the application of immaterialism to contemporary problems of motion" (*Works*, IV, 3) and that a better title for the work would have been "*Motion without Matter*" (*Works*, IV, 3). This interpretation can be understood as 'Kantian' since it is in effect a restatement of the view of Berkeley's philosophy of space that underlies Kant's metaphysical argument.

Much here depends on what is meant by 'immaterialism', in particular the way that this term is contrasted with 'idealism'. The former is the claim that for sensible things or (what is the same) ideas, to be is to be perceived, i.e., "[t]heir *esse* is *percipi*" (*Principles*, I, §3). This is a claim about the existence of sensible things only, not a statement about existence in general. Idealism, on the other hand is the claim that for all things to be is to be perceived or to perceive, i.e., "[e]xistere is percipi or percipere" (*Commentaries*, §429).⁶ This goes further than the immaterialist claim by asserting that the only things that exist are minds and ideas. As the references from the *Commentaries* show Berkeley was confident of the truth of idealism at an early stage of his life. However, he becomes content to settle for the less spectacular immaterialism by the time of his major philosophical works, the *Principles* and the *Three Dialogues*.

Berkeley does not present an argument for idealism in his published works. In fact, in the *Three Dialogues* he has Philonous say "Many things, for aught I know, may exist, whereof neither I nor any other man hath or can have any idea or notion whatsoever". (III, 232) This suggests that Berkeley came to hold that it is possible that things that we humans cannot conceive of exist. This is not equivalent to saying that it is possible that things that are not ideas or perceivers exist. For these "many things" might be archetypes in the mind of God. But the understanding of the limitations of human knowledge that Berkeley expresses here make it difficult to see how the truth of idealism could now be demonstrated.

On the other hand, immaterialism is supposedly proven by the so-called 'master argument'. This argument aims to show that material substance, which "in the common current acceptance of the word, signify an extended solid, movable, unthinking, inactive

⁶ See also *Commentaries*, §437 "Impossible any thing Besides that which thinks & is thought on should exist"

substance” (*Three Dialogues*, D2: 216) or “extended movable substance” (*Principles*, §22) is inconceivable and worse “a downright contradiction” (*Principles*, §22).⁷ Berkeley takes it to be contradictory because it is supposed to be mind-independent but essentially involves sensible properties such as “extended” and “movable”. Because Berkeley has argued that sensible things or ideas cannot exist without the mind material substance is therefore something that is at the same time mind-dependent and mind-independent which is impossible.

With regard to the criticism of Newtonian science and absolute space in particular, the ‘Lucean’ idea seems clear and intuitively appealing. I understand the claim that the rejection of space is premised on immaterialist principles to mean that ‘absolute space’ is put in the place of ‘material substance’ in the master argument and that the conclusion of the argument so construed is that absolute space is an impossible notion because it is both mind-independent and mind-dependent.⁸

A quick survey of Berkeley’s respective arguments on this issue in *De Motu* §52-66 and *Principles of Human Knowledge* §110-7 shows that he did not explicitly base his argumentation on some immaterialist principle nor does he use a version of the master argument to reject the notion of absolute space. Indeed, as D. M. Jesseph, in his introduction to *De Motu and the Analyst: A modern edition* has noted “Perhaps surprisingly, there is no mention of immaterialism in *De Motu*” (1992: 33). More recently, L. Downing (2005) has convincingly argued that not only is there no mention of immaterialist principles in this work, but also, that the actual arguments in this work are not premised on immaterialist principles.⁹ This is certainly surprising if we expect Berkeley to reject absolute space because it is a mind-independent entity. It seems that this fact forces us either to reject Luce’s claim or to

⁷ In the *Three Dialogues* Berkeley lets Hylas propose other conceptions of material substance. Hylas suggests the idea that matter is “an *instrument* subservient to the supreme agent in the production of our ideas” (*Three Dialogues*, D2, 217) and that it is an “*occasion* [...] an inactive unthinking being, at the presence whereof God excites ideas in our minds” (*Three Dialogues*, D2, 219-20). Against these conceptions of matter Berkeley does not employ the master argument. Instead, he lets Philonous convince Hylas that they are incompatible with the divine attributes (*Three Dialogues*, D2, 218, 220). Hylas also suggests that matter is “*the cause of my ideas*” (*Three Dialogues*, D2, 216). This view is rejected because matter is said to act by motion but motion is a sensible quality, therefore it cannot be an action and no cause (*Three Dialogues*, D2, 217).

⁸ In contrast, if the rejection of absolute space was premised on idealist principles this would mean that absolute space does not exist because it is neither a sensible thing nor a mind.

⁹ Downing seems to be primarily concerned with Berkeley’s theory of force. However, she does give an account of Berkeley’s argumentative strategy for dealing with absolute space when briefly mentioning the relevant passage in the *Principles*. She says that “[h]aving declared absolute motion to be incomprehensible, there is no need to posit absolute space.” (2005: 235) This agrees with the assessment of Berkeley’s argument in the *Principles* that I present in sub-section B.

say that Berkeley meant to and should have used immaterialism to argue against the existence of absolute space but did not do so because of some non-philosophical, external reason.

Both Jesseph and Downing choose the second path. I find this surprising because this is certainly not a charitable reading and it quickly leads to a murky conception of Berkeley's motives and integrity. Because they do not question the 'Lucean' claim that Berkeley's treatment of natural science *must* be premised on immaterialist principles they take the fact that it is not to show that Berkeley was engaging in some kind of cover up.

Jesseph claims that Berkeley somehow blurs the connection between his philosophy of science and his immaterialism. "Berkeley certainly does not abandon immaterialism in this work, but his language is sufficiently vague to avoid the issue." (Jesseph, 1992: 33) Downing takes a more specific approach that leads her to the explanation that Berkeley censored his real views for his continental readers. "[H]e seems to go out of his way to keep his immaterialism firmly under wraps. This is not so surprising given his intended audience." (Downing, 2005: 237) She gives two reasons for why Berkeley would tailor his argumentation to suit/deceive his audience. Firstly, since the essay competition was on a topic debated by philosophers of nature "he could not and did not expect a tract on the scientific consequences of immaterialism to be taken seriously by such an audience." (2005: 237) This would be a motive for Berkeley if the Lucean picture is correct and Berkeley's theory of motion follow from the immaterialist principle. But since it is this very assumption that is being challenged here, such a claim is in an important sense question begging. When giving the second reason she goes even further and claims that Berkeley pretended to be a Cartesian dualist. Berkeley would be moved to do this because "[t]he judges, of course, would have been generally Cartesian in orientation, and Berkeley clearly crafts his work with this in mind." (2005: 237) Downing argues for this last point in the following way.

The only passage in which it seems to me that Berkeley carries this strategy [of "emphasizing his points of agreement with Cartesianism to the point that the reader might rashly assume more agreement than actually exists".] to the point of being disingenuous is *De Motu* 29, where he appears to suggest that the corpuscularian conception of body exhausts the real qualities of bodies. Of course, Berkeley himself holds that all the sensible qualities, including colour, taste, sound, and so forth, are alike real qualities of bodies [...]. (2005: 259n19)

This is extremely uncharitable since it amounts to the claim that Berkeley puts forward a position as true which he has extensively argued elsewhere to be false in order to win an essay competition.

There is no need to conclude that Berkeley is being disingenuous. What he says in the relevant section of *De Motu* is consistent with his immaterialism and the theory of the heterogeneity of sense modalities that he developed in the *New Theory of Vision* and expanded in the *Principles* and the *Three Dialogues*. The *De Motu* passage reads “Take away from the idea of body extension, solidity, and figure, and nothing will remain.” (*De Motu*, §29) In the NTV Berkeley argues that the ideas of each sense are distinct in kind. He further claims that the sensible qualities accessible exclusively by touch form the ideas commonly associated with the idea of body.¹⁰

Space or distance, we have shewn, is not otherwise the object of sight than of hearing. *vid.* Sect. 46. And as for figure and extension, I leave it to anyone that shall calmly attend to his own clear and distinct ideas to decide whether he had any idea intromitted immediately and properly by sight save only light and colour. (NTV, §130)

The ideas of vision and hearing, i.e., colour, light and sound, belong to bodies only through inference, i.e., by observing certain changes in colour and light and hearing sounds at the presence of certain tactile sensations. Therefore we do not strictly speaking hear bodies (e.g., a coach) but can only infer the existence of a body in the presence of a sound. When we say ‘I hear a coach’ we are speaking metaphorically.¹¹ Similarly, we do not see bodies but only colours. When we say we see a red-hot bar of iron, what we see is strictly speaking only the colour red, not the solidity or heat.¹² This is expressed most clearly towards the end of the NTV when Berkeley says,

What we strictly see are not solids, nor yet planes variously coloured: they are only diversity of colour. And some of these suggest to the mind solids, and other plane figures, just as they have

¹⁰ I will consider Berkeley’s arguments for these claims in some detail in Chapter 5.

¹¹ “For instance, when I hear a coach drive along the streets, immediately I perceive only the sound; but from the experience I have had that such a sound is connected with a coach, I am said to hear the coach. It is nevertheless evident, that in truth and strictness, nothing can be *heard* but *sound*: and the coach is not then properly perceived by sense, but suggested from experience.” *Three Dialogues*, D1, 204

¹² “So likewise when we are said to see a red-hot bar of iron; the solidity and heat of the iron are not the objects of sight, but suggested to the imagination by the colour and figure, which are properly perceived by that sense.” (*Three Dialogues*, D1, 204) Berkeley here lets Philonous say that we see figure, which goes against what he says in NTV, §130, §158. I take it that Philonous is speaking ‘loosely’, not “in truth and strictness” when he says that figure is properly perceived by vision.

been experienced to be connected with the one or the other: so that we see planes in the same way that we see solids, both being equally suggested by the immediate objects of sight, which accordingly are themselves denominated planes and solids. But though they are called by the same names with the things marked by them, they are nevertheless of a nature entirely differently, as hath been demonstrated. (NTV, §158)

Berkeley claims that sight and hearing do not give us direct, non-inferential access to bodies, whereas the sense of touch furnishes us with immediate sensible access to bodies by the ideas of figure, extension and solidity. His claim in *De Motu*, that if extension, solidity, and figure are abstracted away we have nothing left of the idea of body, is consistent with his view that bodies are primarily tactile and that the main aspects of tactile experience of bodies are of figure, extension and solidity. For this reason the extremely uncharitable claim that Berkeley pretended to be a Cartesian dualist in *De Motu* is unfounded.

Instead I will consider the more moderate and plausible claim that Berkeley censored his view to some extent when writing for his continental readers. Here I will make two observations that strongly suggest that Berkeley was not censoring his views because of a fear that it would be unpopular with his targeted audience. Firstly, he argues against a host of continental scientists and philosophers, such as Leibniz, Torricelli, Galileo and Borelli (*De Motu*, §8, §9, §16 & §19). Secondly, and more importantly in the present context, in Berkeley's discussion on the nature of space and motion he rejects the notion of absolute space in favour of relative space (*De Motu* §53-8). This can only be understood as a rejection of the Newtonian conception of space in favour of the Leibnizian conception. Consequently Berkeley is siding with his continental readers against the English on one of the most infected and divisive philosophical and scientific issues of the time. It is curious to think that Berkeley would have felt pressured to censure his arguments for this popular conclusion.¹³

If good textual evidence is found for Berkeley wanting to censor his view then such an account must be seriously considered. But in the absence of such evidence such an uncharitable reading must be a last resort. In §3 I will take a step back and reconsider Berkeley's reasons for rejecting the notion of absolute space. In opposition to the traditional view I will conclude that the argument against absolute space is not based on the immaterialist principle. This view has actual support in the text and also means that we do not need to go in to historical, psychological or political issues to solve the problem of Berkeley's

¹³ If Berkeley had this strong tendency to side with his intended audience then it is equally perplexing that he published *De Motu* in London in 1721 the year after the essay competition and that he proceeded to publish a criticism of Newton's theory of the calculus in Dublin and London 1734.

failure to mention his immaterialism in connection with the rejection of absolute space. It can be shown that absolute space is an entity outside the scope of an immaterialist attack and this is his reason for not basing his rejection of that notion on that principle.

In order to see that Berkeley's rejection of absolute space is independent of his immaterialism, let us consider the most famous statement of the so-called master argument in the *Principles*. Berkeley is prepared, he says,

To put the whole upon this issue; if you can but conceive it possible for one extended movable substance, or in general, for any one idea, or anything like an idea, to exist otherwise than in a mind perceiving it, I shall readily give up the cause: and as for all the *compages* of external bodies which you contend for, I shall grant you its existence, though you cannot give any reason why you believe it exists, or assign any use to it when it is supposed to exist. I say, the bare possibility of your opinion's being true, shall pass for an argument that it is so. (*Principles*, §22)

The first thing to note is that this argument against the notion of material substance aims to show that it is a contradictory notion. The contradiction lies in the fact that the definition of material substance includes the (on Berkeley's view) irreducibly sensible and therefore mind dependent properties 'extended' and 'movable' whereas it is also supposed to be something mind independent¹⁴. When we try to conceive something that is extended and movable we therefore invariably conceive of something sensible and mind dependent, which goes directly against our intention to conceive of it as mind independent. Here Berkeley does not want to get embroiled in a discussion of whether material substance is a useful notion or if there is any positive reason to believe that it exists.¹⁵ He is certain that such arguments are futile since he is convinced that material substance is an incoherent notion. His confidence in this allows him to say, as a rhetorical device, that he is willing to make the overly generous concession that the mere possibility of the existence of matter shall count as evidence that it actually exists – "I shall grant you its existence, though you cannot give any reason why you believe it exists, or assign any use to it when it is supposed to exist". What this argument shows, if it is successful, is that it is impossible that any sensible thing exists without the mind.

¹⁴ This is particularly clear in *Principles*, §9 when he says "By matter we therefore are to understand an inert, senseless substance, in which extension, figure, and motion, do actually subsist. But it is evident from what we have already shewn, that extension, figure and motion are only ideas existing in the mind, and that an idea can be like nothing but another idea, and that consequently neither they nor their archetypes can exist in an unperceiving substance."

¹⁵ Berkeley does so in the second dialogue in the *Three Dialogues*, see note 6.

What then if it is put to him that certain *not sensible* things exist? Can he show with the master argument that such things are mind dependent? This is a real challenge against Berkeley because Newton states that absolute space is not sensible in the Scholium to the *Principia*.

And so, instead of absolute places and motions, we use relative ones; and that without any inconvenience in common affairs; but in philosophical disquisitions, we ought to abstract from our senses, and consider things themselves, distinct from what are only sensible measures of them.

One thing that Berkeley cannot do here is to invoke the argument for the mind dependence of *sensible things*. If he did, the argument would be ineffective because the conclusion – that a mind independent non sensible thing does not exist – would not follow from what has been established by the master argument – that sensible things are all mind dependent.

Given this understanding of the scope of the master argument and the limit of what is asserted and denied existence by immaterialism, it is not surprising that Berkeley's argument against absolute space does not employ any immaterialist principles. To do so would have been a grave over estimation of the power of that principle. Expressed in another way, we could imagine a meeting between Berkeley and Newton where Berkeley puts to Newton that absolute space does not exist. Newton then asks Berkeley for a proof to this effect. Berkeley reads out his master argument, but Newton then simply smiles and says "I grant it. Sensible things cannot exist without being perceived. But I have stated in the *Principia* that absolute space is not sensible and so you have in no way produced a proof that absolute space does not exist." I think it is clear that Berkeley would have had to give another proof. Further, as I will now show, in the *Principles* §110ff Berkeley actually produces an argument that is explicitly distanced from any preceding immaterialist argument.

B) Berkeley's arguments against absolute space

In order to conclude that absolute space does not exist because it is non-sensible and mind-independent what is required is the idealist principle that nothing exists without the mind. So while commentators, since Jessop (1953) and Luce (1963, 1966) are careful to speak of Berkeley's immaterialism rather than idealism, the received view of Berkeley's take on absolute space must be that the rejection of absolute space stems from an idealist rather than immaterialist point of view. While the former position oversteps what Berkeley thinks he can

show with the master argument, he might have additional arguments to establish the further claim that only minds and ideas exist or he might simply have overestimated the power of his immaterialism and argued as if he had in fact established the truth of idealism when rejecting absolute space. After all, Berkeley never affirms the existence of anything that does not bear an essential relation to the mind and he does argue against many candidates for such entities. Is this not manifest idealism?

The question is then whether (1) Berkeley did not or at least could be thought to base his rejection of absolute space on the idealist principle, or whether (2) Berkeley did not misunderstand his immaterialism and thought that he could prove with it that non-sensible things do not exist. In order to decide on this issue it will be useful to consider Berkeley's actual argument against absolute space in some detail. Matters are complicated because Berkeley has a sustained discussion of absolute space in two places in his writings (*Principles*, §110-7, *De Motu*, §53-66) where a number of different arguments are put forward. It will be useful to classify these. Between the two works we can discern between what I will call three 'arguments proper' and two 'remarks'.¹⁶ Berkeley puts forward a 'metaphysical-theological argument' (*De Motu*, §52-4), a 'metaphysical argument' (*De Motu*, §57) and a 'scientific argument' (*De Motu*, §63-5, *Principles*, §110-6). He further makes a 'psychological remark' (*De Motu*, §55, *Principles*, §116) and a 'theological remark' (*De Motu*, §56, *Principles*, §117).

The first two 'arguments proper' are only found in *De Motu*. Around the time that Berkeley wrote this work the discussions about the theological and metaphysical aspects of absolute space were rife. As we have seen in Chapter 2.1, Leibniz' and Clarke's famous public dispute had taken place between the time of Berkeley publishing the *Principles* (1710) and *De Motu* (1720).

The 'metaphysical-theological argument' objects to the view that absolute space "shares the divine attributes." (*De Motu*, §54) Because absolute space is thought to be infinite, immovable, indivisible, insensible etc. (*De Motu*, §53) it is thought to share its attributes with God. Berkeley attributes this position to Ralphson in particular.¹⁷ Berkeley's

¹⁶ In *De Motu*, §58-60 Berkeley also attacks Newton's famous arguments for the thesis that the effects of absolute motion can be distinguished from that of relative motion (see Chapter 2.1A). These arguments concern absolute motion rather than absolute space and will not be analysed here.

¹⁷ Berkeley refers explicitly to Ralphson's *De Spatio Reali* in *Letter to Johnson*, Feb. 5, 1730, §2, where he says that he "pretends to find out fifteen of the incommunicable attributes of God in Space." See also *Commentaries*, 298, where he says "Locke, More, Ralphson etc seems to make God extended."

reply is that these attributes are “pure privation or negation” (*De Motu*, §53) and therefore that they can just as well be attributed to nothing as to absolute space.¹⁸

The ‘metaphysical argument’ concerns the difficulty in fitting absolute space into a metaphysical scheme, such as classifying it as either a substance or an accident, created or uncreated. This is an argument that would be familiar to readers of the *Controversy*. Indeed, Berkeley does not consider the argument in any detail but assumes that the argument is well known “[i]t would be easy to confirm our opinion [...] by proposing questions concerning absolute space, for example, whether it is a substance or accidents? whether it is created or uncreated? and then showing the absurdities follow from either answer.” (*De Motu*, §57)¹⁹

I want to draw attention to two aspects of these arguments. Firstly, *they are not direct attacks on the conception of absolute space* as it is introduced in the Scholium to Book 1 of the *Principia* (see Chapter 2.1). That is, as a notion required to make true (as opposed to merely apparent) motion comprehensible. Rather, the arguments concern certain consequences of that notion, i.e., that they lead to undesirable theological and metaphysical conclusions. These arguments are therefore better characterised as certain *theological and metaphysical interpretations of the concept of absolute space*. In particular with interpreting the relation between the notion of absolute space and divine attributes on the one hand, or with a theory of the relation between substance and attribute on the other. Secondly, the arguments do not point to difficulties with squaring the notion of absolute space with the existence or non-existence of material substance. Because they concern the relation of the concept of absolute space to the divine attributes, or with the substance-attribute scheme it is quite clear that these are arguments that are quite independent of any immaterialist principles. For these reasons they cannot be considered to be Berkeley’s “application of immaterialism to contemporary problems of motion”. Nor should we expect them to be given the historical context in which these kinds of objections first arose.

¹⁸ Berkeley acknowledges that on this view extension is also attributed to absolute space and that this appears to be a positive attribute (*De Motu*, §53). But he replies that the kind of extension spoken of here is not the usual sense of the word. Extension is commonly understood as being divisible and measurable. But the extension belonging to absolute space cannot be divided or measured since absolute space is supposed to itself be indivisible, unmovable and insensible. Such a notion of extension, Berkeley claims, cannot be apprehended in any way and is therefore meaningless.

¹⁹ Leibniz explains that he thinks the notion that absolute space is an attribute is absurd because it is impossible to comprehend what substance empty space could be an attribute of (*Controversy*, L4, §8). If space is empty then it seems to be an attribute without a subject (*Controversy*, L4, §9). If, on the other hand, space is “an absolute reality” (*Controversy*, L4, §10) then it seems to be a rival to God. While I have characterised this argument as ‘metaphysical’ it is, like the ‘theological-metaphysical- argument in part also concerned with the problematic relation between absolute space and God.

Further, the two ‘remarks’ are not arguments against absolute space at all, but auxiliary explanations. The ‘theological remark’ draws out the positive theological consequences of rejecting absolute space and the ‘psychological remark’ gives an account of an introspective mistake by which Berkeley thinks people erroneously believe that they can imagine and so give content to the idea of absolute space.

The ‘theological remark’ consists in pointing out the advantage of giving up the notion of absolute space. “[T]he human mind is most easily freed from great difficulties” (*De Motu*, §56) and by giving up this notion we “we are freed from that dangerous *dilemma* [...] of thinking either that real space is God, or else that there is something beside God which is eternal, uncreated, infinite, indivisible, immutable.” (*Principles*, §117).

The ‘psychological remark’ consists in pointing out how we can come to believe that what is really nothing is an important philosophical and scientific notion. In other words, he gives a psychological explanation of how certain followers of Newton (perhaps also Newton himself) come to hold this false belief. Berkeley wants to see what sort of idea is formed in relation to absolute space. He again asserts that this is an idea “of the purest nothing”. But he then suggests, at the beginning of §55, that

We may sometimes be deceived of the fact that when in imagination we suppose all other bodies to be removed, we still suppose our own body to remain. Under this supposition, we imagine the freest motion of our limbs on all sides. But motion without space cannot be conceived.

The introspective mistake that leads some people to believe that absolute space is an object of the imagination is that they imagine that there are no bodies outside themselves and conclude from this that they are imagining empty space. For they still have not removed their own body in thought (Berkeley actually dwells on the case where we would successfully remove our own body in imagination and this thought experiment is highly significant for his conception of space, as I will show in Chapter 5). Then they imagine themselves being able to move freely in all directions because they meet no resistance when they move their limbs. But it is impossible that there is any movement where there is no space. They then conclude that they have imagined, or had an idea of, absolute space, since they think that this space is empty of bodies. This, of course, is a mistake, because there is one body in this space, our own body.

Nevertheless if we consider the matter more attentively, it will be clear that we conceive first a relative space marked out by the parts of our body, secondly, the full free power of moving our limbs impeded by no obstacle, and nothing beyond this. And yet we falsely believe that there is some third thing, namely immense space really existing, which invests us with the free power of moving our body: but for this is required only the absence of other bodies. And we must admit that this absence, or privation of bodies, is nothing positive. (*De Motu*, §55)

So when we try and form an idea of absolute space in this way we commit two mistakes. Firstly, we fail to see that the motion that we imagine takes place in a space that is relative to the position of the parts of our body. Secondly we take a lack of resistance as indicating the existence of a thing, i.e., absolute space existing in itself or “immense space really existing”.

What remains as a possible candidate for an argument against absolute space that is premised on an idealist or immaterialist principle is what I have termed the ‘scientific argument’. Initially such an interpretation appears plausible. For the argument is the only argument against absolute space in the *Principles*. If Berkeley was silent about his immaterialism in *De Motu* this is certainly not the case in the former work. If we are to find an argument against absolute space premised on idealist or immaterialist principles, this seems to be the place to look.²⁰

In §110-17 of the *Principles* Berkeley turns to the mechanical science presented by Newton in the *Principia*; and the concern is with the distinction between absolute and relative space, time motion and place. In §111 Berkeley gives an account of what is meant by these absolutes.²¹ He also explains why these notions are thought to be required in natural science and philosophy. The reason is that when determining if and how a body is in motion, a merely relative conception of motion will involve ambiguities. If no body has the right to be taken to be in absolute motion, then anything and everything can be taken to be moving. This conclusion seems to go against our experience of things. It would seem absurd to say that both I and a stone lying on the ground before me move towards each other, when I am walking towards it. So absolute motion is then required if we want to be able to determine what body in a system of bodies is moving and what is at rest. Further, different systems of things are in motion relative to each other and this gives rise to an analogous problem for these systems of things. If I drive on a road in a westerly direction I usually think that I am moving in that direction with the speed indicated by my speedometer. This is because I take

²⁰ However Berkeley presents the ‘scientific argument’ also in *De Motu*. I will refer to the corresponding passages in that work in footnotes.

²¹ See also *De Motu*, §52

the surface of the earth to be at rest. However, the earth rotates from west to east much faster than my car moves. So from the point of view of the sun for example (if we could take up such a position), I move in an easterly direction. To give a truly objective account of the state of affairs, and find out what direction I am really moving in (my absolute motion), we need something to be at absolute rest and this is an absolute place, the totality of which is absolute space.

In answer to this Berkeley explains that he does not see these ambiguities in determining the motion of things as sufficient for introducing the absolute conception of motion (*Principles*, §112). Motion, he holds, cannot be conceivable if there is only one object.²² Instead, he takes it to be necessary for any concept of motion that there are at least two bodies so that there can be variations of position or distance between the two. For this reason Berkeley thinks all motion is relative and so he must solve the problem of how to account for true motion in a different way from Newton.

Berkeley explains how he can account for true motion in the following two sections. Firstly, he immediately stresses (*Principles*, §113) that the denial of absolute space in this sense does not by itself lead to the conclusion that everything can equally be regarded as being in motion. Berkeley does not want to be committed to the view that, for example, if I am approaching a tree by a road the tree moves just as well as me. According to Berkeley, those things move which have the force that causes the change of distance between the bodies under consideration. In the example I am making myself move towards the tree whereas the tree is not making any effort to change the distance between me and it. So it is I who moved while the tree was at rest. Berkeley claims that in this situation it can be determined what thing is changing place by means of a consideration of a moving force completely independently of the supposition of absolute space.

Secondly, by settling on mere relative motion we do not forfeit the objectivity required in mechanics. Relative space is sufficient to establish the true motion of things to any desired degree, and that is all that is ever required. Berkeley explains this in the following important passage.

A man in a ship may be said to be quiescent, with relation to the sides of the vessel, and yet move with relation to the land. Or he may move eastwardly in respect of the one, and westward in respect of the other. In the common affairs of life, men never go beyond the earth to define the place of any body: and what is quiescent in respect of that, is accounted *absolutely* to be so. But philosophers

²² See also *De Motu*, §58.

who have a greater extent of thought, and juster notions of the system of things, discover even the earth itself to be moved. In order therefore to fix their notions, they seem to conceive the corporeal world as finite, and the utmost unmoved wall or shell thereof to be the place whereby they estimate true motions. If we sound our own conceptions, I believe we may find all the absolute motion we can frame an idea of, to be at bottom no other than relative space thus defined. For as hath been already observed [in §112], absolute motion exclusive of all external relation is incomprehensible: and to this kind of relative motion, all the above-mentioned properties, causes, and effects ascribed to absolute motion, will, if I mistake not, be found to agree. (*Principles*, §114)²³

According to Berkeley, philosophers of nature determine the motions of the observable universe by setting a determined limit on it. They “fix their notions” by taking the corporeal world to be finite and take the outermost border of this space as the frame of reference when measuring motions within this region of space.²⁴ Further, the outer border of the corporeal world can be extended as our means of observation changes. Berkeley was well aware that we can see stars that are too far away for the naked eye by looking through a telescope.²⁵ So the relative space taken to be at rest can, it seems, be extended indefinitely. In this way Berkeley thinks that “relative space, thus defined”, that is, a sufficiently large portion (which can be extended indefinitely) of relative space can play the role of Newton’s absolute space. It is this rejection of absolute motion on the ground that it is redundant that is the basis for Berkeley’s rejection of the notion of absolute space, not some immaterialist or idealist principle.

Let us take stock of what has been argued so far in this section. First, I have shown that Berkeley could not have applied the master argument to absolute space because absolute space is an entity outside the scope of the immaterialist principle (sub-section 1). Second, that Berkeley’s actual arguments against absolute space do not depend on the idealist or immaterialist principle (sub-section 2). These seem to be good reasons for rejecting the ‘repression hypothesis’. But it is important not to underestimate the power of an objection that claims that the author of a philosophical work is deceiving his readers. In particular, merely showing that in actual fact Berkeley does not use the idealist or immaterialist

²³ See also *De Motu*, §64

²⁴ See *De Motu*, §64 where Berkeley claims that “the relative space enclosed by the fixed stars” could be the outer border of the space that is taken to be at rest.

²⁵ “Yet if you take the telescope, it brings into your sight a new host of stars that escape the naked eye. Here they seem contagious and minute, but to a nearer view immense orbs of light at various distances, far sunk in the abyss of space. Now you must call imagination to your aid. The feeble narrow sense cannot descry innumerable worlds revolving round the central fires”. *Three Dialogues*, D2, 211

principle is not sufficient for showing that he did not ‘really’, which here means ‘privately’ or even ‘unconsciously’, rely on them.

For this reason it is possible to think that though Berkeley used the arguments he did, perhaps this was because of the unpopularity of immaterialism and idealism, which led him to use other arguments to establish what was clear to him on the basis of his idealist conviction. Perhaps, then, Luce, Jesseph and Downing understand Berkeley better than he did, or pretended to do, himself.

However, in the end this is an unreasonable view to take on the situation. The reason for that is that the structure of Berkeley’s argument against absolute space in the *Principles* explicitly shows that Berkeley knew that what was at issue was precisely the question of whether a notion of space that is non sensible does exist or not and that a new argument that is different from the master argument is needed to show this. So Berkeley did understand it as a threat to his idealist conviction and he was aware that he could not use the immaterialist principle to disprove its existence.

To see this it is instructive to note that in §110 of the *Principles* Berkeley characterises absolute space, time, motion and place as quantities that exist independently of the mind and that, though they commonly are conceived with relation to sensible things they bear no relation to anything sensible in so far as their own nature is concerned. So absolute space (as well as the corresponding concepts of time, motion and place) is something that we cannot have any idea of because it is neither sensible nor itself related to anything sensible. Yet Newtonian science depends on this notion and therefore it seems to have an absolute existence independently of the mind and so it is an excellent candidate for an entity that threatens Berkeley’s belief that nothing exists without the mind. As Berkeley puts it,

The best key for [...] natural science, will be easily acknowledged to be a certain celebrated treatise of *mechanics*: in the entrance of which justly admired treatise, time, space and motion, are distinguished into *absolute* and *relative*, *true* and *apparent*, *mathematical* and *vulgar*: which distinction, as is at large explained by the author, doth suppose those quantities to have an existence without the mind: and that they are ordinarily conceived with relation to sensible things, to which nevertheless in their own nature, they bear no relation at all. (*Principles*, §110)

By first stating that the *Principia* is the “best key” for natural science and calling it a “justly admired treatise” and then stating that it depends (as it is presented “in the entrance” of the work) on certain absolute notions that “as is at large explained by the author, doth suppose

those quantities to have an existence without the mind” I take it to be clear that this notion is a genuine problem to the position that nothing exists without the mind and that Berkeley here is saying that he understands it as such.

As we have seen in the previous section Berkeley deals with this threat in the way we would expect him to, given the limitations of the immaterialist principle and the indemonstrability of the idealism principle. He proceeds by showing that absolute space is useless and that relative space, when suitable rules for conceiving it are applied, can do the job absolute space was posited to do. Then, in §116, Berkeley picks up where he left his line of argument at §110 and considers whether the notion of absolute space shows that some things exist without the mind.

From what hath been said, it follows that the philosophic consideration of motion does not imply the being of an *absolute space*, distinct from that which is perceived by sense, and related to bodies: which [i.e., the space perceived by sense] that it cannot exist without the mind, is clear upon the same principles, that demonstrate the like of all other objects of sense. (*Principles*, §116)

This quote shows that Berkeley takes the reduction of absolute space to relative space to which a rule of thought is applied to overcome the threat posed by the notion of absolute space to his belief that nothing exist without the mind. Another thing that this quote shows is that Berkeley was aware that he cannot use the master argument or an idealist counterpart directly on the notion of absolute space. Instead, by showing that relative space can stand for absolute space in the sense discussed, he then makes the point that since relative space is sensible it depends on the mind because, as his immaterialist principle shows, it is a contradiction to claim otherwise. In this way his modified version of Newtonian mechanics is consistent with his claim that nothing exists without the mind without begging the question against the Newtonian by using immaterialism to fend off the suggestion that absolute space exists without the mind.

2) Kant on absolute space

Berkeley did not base his criticism of the Newtonian conception of space on what we might call a ‘dogmatic idealist’ principle, i.e., that only things that can be perceived exist. Accordingly, the ‘intuition’ behind what I have referred to as Kant’s metaphysical argument against Berkeley has been shown to be a misunderstanding of Berkeley’s conception of the

nature of human knowledge and existence. But what follows from this rejection is not a proclamation of the transcendental ideality of space. This became clear when we further saw how Berkeley explained how to estimate true motion without the supposition of the existence of absolute space. On his account we can have an immovable and all encompassing framework for estimating the motion of any body or system of bodies by merely taking the sensible, relative and empirical space *as if* it had these properties. All that the scientist has to do is to “conceive the corporeal world as finite, and the utmost unmoved wall or shell thereof to be the place whereby they estimate true motions.” Is this not ample proof that Berkeley is simply working within the conceptual confines of transcendental realism and opting for the relational view rather than the absolute? Rather than showing Berkeley to be outside the reach of Kant’s criticism the conclusion rather seems to be that Berkeley indeed had a merely empirical conception of space with all that this brings with it concerning truth in experience.

In Chapter 2.1B I explained that Kant took the strength of the Newtonian absolute conception of space to be that it succeeds “in opening up the field of appearances for mathematical assertions.” In fact, since the *Principia* was considered to be such a success it is crucial for Kant to explain how it is possible to have a science of the mathematical determination of motion without presupposing that space is something in itself. In this section I will examine Kant’s treatment of Newtonian science with the aim to decide how Kant takes it to be possible to estimate true motions without absolute space and in particular what notion of space is used in its stead. If Kant uses his transcendental idealist conception of space here, then the fact that Berkeley does not does point at a genuine difference as indicated. However, if Kant employs the relational conception of space instead of the absolute in the same way as Berkeley did, then the metaphysical argument would have no force.

A) 3 conceptions of space

As Kant points out in both in the *Prolegomena* 4:374 and in the second edition of the *First Critique* B69-70, he is in explicit agreement with Berkeley and rejects the notion of absolute space understood as a thing in itself. But by doing so he does not take himself to be forced into a merely empirical conception of space, that is, Leibniz’ view of space, where our notion of space is created by the mind through an act of abstraction of the relations of situation and distance of bodies. Rather, Kant rejects both the Newtonian claim that space is an independently existing, objective framework and the Leibnizian claim that space is a merely empirical representation. He can do so because according to him space is a pure form of

sensible intuition, i.e., it is subjective in that it belongs to our way of representing objects but it is also prior to bodies because bodies are outer sensible objects and space is the condition under which all outer objects are possible in the first place. So Kant only criticises one aspect of Newton's conception of space, its objective existence, but retains the view that space is in a sense prior to outer experience. This seems to suggest that Kant's and Berkeley's respective appropriations of Newtonian science are significantly different precisely with regard to the notion of space, which is *a priori* on the former view and empirical on the latter.

But the matter is significantly more complex than this. Kant's appropriation of Newtonian science is significantly more complex than a mere internalisation and idealisation of Newtonian absolute space into space as pure intuition. In fact, in Kant's revision of Newtonian mechanics the pure intuition of space does not feature. Instead Kant's revision of the understanding of relative space takes the centre stage. We find his engagement with absolute space most fully articulated in the *Metaphysical Foundations*. This is a treatise on the concept of motion. Motion is an empirical concept and therefore it could not be an element of cognition that is Kant's concern in the *First Critique*, such as a pure intuition or a pure concept that are considered in the *Transcendental Aesthetic* and the *Transcendental Logic*, respectively.

Finally, that the transcendental aesthetic cannot contain more than these two elements, namely space and time, is clear from the fact that all other concepts belonging to sensibility, even that of motion, which unites both elements, presuppose something empirical. For this predicate supposes the perception of something movable. In space considered in itself there is nothing movable; hence the movable must be something that is found **in space only through experience**, thus an empirical datum. (A41/B58)

Finally, I further remark that, since the *movability* of an object in space cannot be cognized *a priori*, and without instruction from experience, I could not, for precisely this reason, enumerate it under the pure concepts of the understanding in the *Critique of Pure Reason*; and that this concept, as empirical, could find a place only in a natural science, as applied metaphysics, which concerns itself with a concept given through experience, although in accordance with *a priori* principles. (*Metaphysical Foundations*, 4: 482)

In the *Metaphysical Foundations* Kant treats Newtonian science (and the *Principia* in particular) as paradigmatic for the natural science to which Kant wants to supply a

metaphysical foundation.²⁶ Why, then, does natural science stand in need of such philosophical support? The reason is that natural science (e.g., Newton in the Scholium to Book 1 of the *Principia*) proceeds without investigating their source or origin. As Kant puts it in the *Metaphysical Foundations* “they [the mathematical physicists] therefore preferred to postulate such [metaphysical principles], without investigating them with regard to their *a priori* sources.” (*Metaphysical Foundations*, 4: 472) Given this state of affairs it is to be expected that the aspects to be critically scrutinised by Kant in his work on the philosophical basis of the natural sciences are those notions that are fundamental to Newton’s theory. The concepts of absolute space and time have precisely this status. As Friedman puts it,

[W]e should expect Kant’s primary object of concern to be the spatiotemporal framework of the *Principia*: specifically, the notions of absolute space and absolute time that are fundamental to Newton’s presentation of his theory. These notions, as employed by Newton, can of course find no place in the critical philosophy, and Kant is therefore faced with the problem of capturing the content of Newton’s theory without relying on such metaphysically suspect notions. For Kant absolute space and absolute time are not possible objects of experience. How then can the *Principia*, which is entirely based on these notions, find such brilliantly successful application to experience? Here is Kant’s “Leibnizean” problem. Here is where Kant needs to find a middle ground between Newtonian “absolutism” and Leibnizean “relationalism”. (1992: 139-40)

In the first chapter of the *Metaphysical Foundations*, where Kant clarifies the notions of matter, motion and space, it immediately becomes clear that Kant cannot substitute his form of outer intuition for Newtonian absolute space in mechanics. As Kant explains (Explication 1, Remark 2), there is a metaphysical notion of matter where this concept is explicated in reference only to the cognitive faculty in which that representation can first be given to me (*Metaphysical Foundations*, 4: 481). In this sense matter is every object of the outer senses. He further explains that the notion of form that corresponds to this would be “the form of all outer sensible intuition” (*Metaphysical Foundations*, 4:481). This description of this sense of form could be applicable either to the form of sensibility, the concept that Kant gives an exposition in the *Transcendental Aesthetic* of the *First Critique*; but it could also be Newtonian absolute space. Of course, Kant has ruled out the latter possibility in his ‘direct’ and ‘indirect’ proofs of transcendental idealism in the *First Critique*. But in the *Metaphysical Foundations* Kant is not interested in the question of transcendental idealism or realism.

²⁶ This point is convincingly argued for by Friedman (1992: 136)

Instead he says that “we here leave completely aside the question whether just this form also belongs *in itself* to the outer object we call matter, or remains only in the constitution of our sense.” (*Metaphysical Foundations*, 4: 481) So Kant’s modification of Newtonian science, which aims to retain the content of Newton’s theory without relying on Newtonian ‘absolutes’, does not make use of the transcendental ideality of space to do so.

Kant further emphasises this in Chapter 1, Explication 2, Remark 3, where he mentions incongruent counterparts. This concept can be used to prove that space does not belong to properties or relations of things in themselves but merely to our subjective form of sensible intuition, as Kant had done in the *Prolegomena* (4: 285-6). But, Kant remarks, “this is a digression from our present business” (*Metaphysical Foundations*, 4: 485). In the *Metaphysical Foundations* “we must necessarily treat space as a *property* of the things under consideration, namely, corporeal beings, because these things are themselves only appearances of the outer senses, and only require to be explicated as such here.” (*Metaphysical Foundations*, 4: 484) So here Kant again clarifies that he is concerned with explicating space as a property of corporeal, sensible, things, that is, as relative space. The pure intuition of space can explain how we can have the kind of geometrical knowledge we do in fact have, since this knowledge is itself *a priori* and its objects are constructible in pure intuition. But it cannot be used to explain how we are to distinguish true from apparent motion, because motion is only conceivable in empirical space.

So it is clear that Kant’s solution to the ‘Leibnizean problem’ of finding a middle ground between relative and absolute space that will not be metaphysically suspect but that will be consistent with the scientific findings of the *Principia* will not be the transcendently ideal form of outer sense. Instead, the solution will lie in formulating a conception of relative space that can play the role assigned by Newton to absolute space, i.e., to determine true motion of objects and systems of objects.

B) ‘Absolute space’ as a product of relative space

In Explication 1 of the *Phoronomy* chapter Kant distinguishes and defines the notions of relative and absolute space that he will be using. The former is “[t]hat space which is itself movable” (*Metaphysical Foundations*, 4: 480), the latter is “that in which all *motion* must finally be thought (and which is therefore itself absolutely immovable)” (*Metaphysical Foundations*, 4: 480). Now, the motion of something is designated with reference to other movable things, and relative space is then the totality of all objects of outer experience and is

therefore nothing over and above these objects (as when space is considered as the pure form of intuition), therefore it is itself an object of experience and so should be termed material or relative space (*Metaphysical Foundations*, 4: 480, 481) or *empirical space* (*Metaphysical Foundations*, 4: 481).

Further, since this relative or empirical space is nothing over and above the matter in it, Kant claims that this material space is itself movable. However, if the empirical space itself can be experienced to be moving, then there must be an even larger empirical space in which this motion is sensed, and so in indefinitely. All motion that can be experienced is therefore relative since something moving in one direction when considered in one region of space (e.g., our solar system) could be taken to be at rest or moving in some other direction when a sufficiently larger region of space (e.g., the milky way galaxy) is considered as a framework for determining the motion of the thing.

It is therefore a mistake to assume an absolute space in Newton's sense as a non-sensible space that is given in itself. Instead, Kant explains that by 'absolute space' he means relative space understood in a particular way.

Absolute space is thus *in itself* nothing, and no object at all, but rather signifies only any other relative space, which I can always think beyond the given space, and which I can only defer to infinity beyond any given space, so as to include it and suppose it to be moved. Since I have the enlarged, although still always material, space only in thought, and since nothing is known to me of the matter that designates it, I abstract from the latter, and it is therefore represented as a pure, nonempirical, and absolute space, with which I compare any empirical space, and in which I can represent the latter as movable (so that the enlarged space always counts as immovable). To make this into an actual thing is to transform the *logical universality* of any space with which I can compare any empirical space, as included therein, into a *physical universality* of actual extent, and to misunderstand reason in its idea. (*Metaphysical Foundations*, 4: 481-2)

For Kant 'absolute space' means a region of relative space that is larger than any given region of relative space, so that we are able to conceive that smaller given region of space as itself movable within the larger. When Kant speaks of 'absolute space' he therefore does not mean 'metaphysical' space, the form of what is sensible (whether it be merely subjective or belong to the determination of the objects themselves). Absolute space is therefore not an object and something that is given in itself but rather given as a task for reason, but it is a task that can never be completed. For since the universe extends indefinitely, there will always be more

relative space outside any frame of reference for the determination of motion that we assign. Absolute space is accordingly “a mere *idea*” (*Metaphysical Foundations*, 4: 559) of a space that is not conditioned by some further empirical space. Kant thinks that it is only with this idea we can actually conceive all other spaces as movable, since our largest relative space will always appear to us to be unmoved. So it is the very relativity of motion that forces the idea of absolute space upon us. “Absolute space is therefore necessary, not as a concept of an actual object, but rather as an idea, which is to serve as a rule for considering all motion therein merely as relative” (*Metaphysical Foundations*, 4: 559). It is in this way that Kant rejects Newton’s conception of absolute space but still can give content to the notion of true motion, and in word, if not in meaning, retain ‘absolute space’, not as an object but as a rule or task for reason.

Accordingly, we have three conceptions of space at work here, absolute, relative and metaphysical (space as pure intuition). Within Kant’s project of the *Metaphysical Foundations*, where his aim to correct the Newtonian conception of space, he works with relative space and absolute space. Unlike Newton, however, absolute space is not a precondition for objects and not ontologically distinct from relative space. It is rather an idea constructed out of relative space.

His quarrel with Newton exclusively concerns how to understand this space. So we then see how Kant can claim that his rejection of absolute space as existing in itself does not mean that he must take space to be merely empirical. He can determine the true motion of objects by construing relative space in such a way that it is taken to be immovable. Then further, this relative or empirical space is grounded on the metaphysical determination of space as a pure intuition. For relative space is a property of outer appearances and outer appearances presuppose a pure intuition of space (a form of sensibility) in order to locate the sensation (the matter of appearance) in different places. And this notion of space, as he has explained in the *First Critique* and the *Prolegomena* allows him to claim that the senses intuit *a priori* and therefore that there is necessity and universality and therefore that there is truth in experience.

Kant’s and Berkeley’s respective appropriations of Newtonian science are then strikingly similar. We can say that they both solve the ‘Leibnizian problem’ in the same way. They both hold that all motion is relative and they both take ‘absolute space’ to be the result of taking relative space that is outside the region that is the object of scientific inquiry and applying certain rules to this larger region, i.e., thinking of it as being at rest. Therefore, contrary to the suggestion that it can be shown from Berkeley’s modification of Newtonian

science that Berkeley is working within an empiricist and transcendently real conception of space this investigation has shown that it is in line with Kant's own appropriation of Newtonian science. Kant's metaphysical argument against Berkeley then fails because they appropriate absolute space in the same way in order to have a philosophically sound notion of true motion. As we have seen in this chapter and the last, Kant thinks that relative space is itself grounded on the pure intuition of space. Berkeley, on the other hand, appears content to stop the account of the nature of space with the scientific conception required for the philosophically sound conception of true motion. This, on the one hand, means that we cannot press the metaphysical argument any further. But on the other hand, it also shows that Berkeley's merely negative treatment of space in *De Motu* and the *Principles* must be supplemented by a positive account of space in order to settle the question of whether he took there to be another conception 'behind' relative space, like monads for Leibniz (a possibility we already rule out for Berkeley in Chapter 1.2) or a pure intuition for Kant. Only when an answer to this question has been given can we conclude if Kant's epistemological argument against Berkeley has been successful or not.

Chapter 4: Space, transcendental synthesis of the imagination and motion, as act of the subject

In Chapter 3 I have shown that Kant's metaphysical argument against Berkeley fails. It now remains to consider the epistemological argument, i.e., the argument that Berkeley's merely empirical conception of space turns truth into illusion. Kant takes Berkeley to be committed to a merely empirical conception of space because Berkeley failed to see that the senses could intuit *a priori*. In order to judge whether Kant's own argument against Berkeley has any force, I must then consider the nature of what Kant calls 'pure intuition' in such a way that it can be compared with Berkeley's conception of space. This task could be approached in two ways, which I will refer to as the 'direct' and 'indirect' way.

The direct way would be to look for evidence that Berkeley had a merely empirical concept of space. If such evidence is found then Kant's claim that there is a substantial difference between his and Berkeley's philosophy would be vindicated (though whether Kant's transcendental philosophy is 'more right' than Berkeley's immaterialism would of course not thereby be decided). There are two ways that Berkeley could be thought to have a merely empirical conception of space. Either it could be shown that Berkeley thought that only relative space exists and that this space of experience does not itself require a pure intuition of space. Or it could be shown that Berkeley thought that geometry is an empirical science, in which case there is nothing *a priori* underlying geometrical knowledge. I have shown in Chapter 3 that Berkeley's claim that only relative space exists does not warrant the conclusion that there is no form of intuition underlying the experience of things as in space. For Berkeley's claim is restricted to the use of the concept of space in natural science and in this restricted sense Kant also thinks that only relative space exists. In this way the argument I presented in Chapter 3 against Kant's metaphysical argument also serves to make the epistemological argument seem less attractive. Further, as will become apparent in Chapter 5, by the time of writing his major philosophical works Berkeley does not think that geometry is an empirical science. Therefore, evidence that Berkeley had a merely empirical conception of space must be sought by more indirect means.

1) **Pure intuition and synthesis**

The indirect way of assessing whether Berkeley had a merely empirical conception of space is to consider whether he is inconsistent when claiming that geometry is an *a priori* science.

That is, to consider, firstly, whether he has any ground for taking geometry to be possible as an *a priori* science; and secondly, whether this ground is comparable to Kant's account of the same.

Accordingly, this task requires an account of the relation between Kant's conception of space and geometry, which is then compared with Berkeley's view. For this purpose the 'direct' argument for transcendental idealism might seem like a sufficient account of Kant's conception of the relation between geometrical knowledge and the representation of space. It is not. The direct argument is an 'argument from elimination' that states that only if space is a pure intuition (as opposed to either an *a priori* or empirical concepts or an empirical intuition) can geometrical knowledge be synthetic and *a priori*. This is insufficient because it only shows what properties of space account for the synthetic and *a priori* character of geometrical knowledge. The account of space arrived at by this argument does not explain what the pure intuition of space is, nor does it explain how the intuitive and *a priori* character of space grounds geometrical knowledge, it only states that it has to. Therefore, some content must be given to the designation 'pure intuition of space', or else we cannot know if Berkeley recognised something corresponding to this term. I will do this by considering how Kant understands space to first be given as an intuitive representation. It will turn out that the process that makes this possible is also the process that makes our geometrical knowledge possible.

In this section I will explain how I understand Kant's conception of space as a pure intuition and its relation to geometrical knowledge within the conceptual hierarchy of his own critical system. In Section 2 I will explore a way of interpreting this notion in a way that will enable me to compare it with Berkeley's conception of space in Chapter 5.

A) On the question of how space is given

Kant's main discussion of the nature of space takes place in the *Transcendental Aesthetic* and I have considered Kant's position there in Chapter 2.1. However, as I will show in this section, Kant took that account of space to be, in a sense, incomplete and I shall consider his somewhat 'deeper' treatment of the issue in the *B-Deduction*. It is deeper because it does not merely state that space is a pure intuition belonging to our subjective condition for outer experience. Instead it explains what it is about us that makes this pure intuition possible and how it actually makes geometrical knowledge possible.

Let us first reconsider the structure of the representation of space that Kant sketches out in the *Transcendental Aesthetic*. In a passage that was added to the beginning of that section in the second edition, Kant explains how we should understand the aim of this exposition. “By exposition (*expositio*) I mean the clear, though not necessarily exhaustive, representation of that which belongs to the concept: the exposition is *metaphysical* when it contains that which exhibits the concept as *given a priori*.” (B38) This means that it can be seen as an attempt to answer the question “what is space” in the sense of the question “what necessarily belongs to the representation of space”. That is to say, it is 1) an attempt to distinguish some defining marks of a concept and so it is an investigation into the content of the concept and 2) the concept under investigation is already given to us, the genesis of the representation is not at issue.

So in the *Metaphysical Exposition* the presence of the representation of space is taken to be a brute fact. This can be taken as a highly unsatisfactory supposition in an enquiry into the nature of space. Though Kant’s understanding of the aim of his ‘expositions’ precludes the further question of how space is given to us, how it is that we should have the representation of space, this does not mean that it is outside the scope of the Critical philosophy as a whole. Indeed, Kant deals precisely with this issue in a different part of the work, in the context of a distinction between space as an object and space as a mere precondition for outer experience (B161). In preparation for my interpretation of this distinction I will consider the different terms by which Kant refers to space in the *Transcendental Aesthetic*, as already in this early stage of the work some terms appear to reflect the distinction made later on.

The terms ‘pure intuition’, ‘form of appearance’ and ‘form of sensibility’ are all used in the *Transcendental Aesthetic* to denote the kind of thing that space is. But these terms seem to be used differently. ‘Form of appearance’ is defined as “that which allows the manifold of appearance to be ordered in certain relations” (A20/B34). This makes no reference to the mind but is only an abstraction of what is sensible in an appearance. On the other hand, since sensibility is “[t]he capacity (receptivity) to acquire representations through the way in which we are affected by objects” (A19/B33), the ‘form of sensibility’ is “that within which the sensations can alone be ordered and placed in a certain form cannot itself be sensation [...] but its form must all lie ready for it [the matter of sensation] in the mind *a priori*” (A20/B34). So this term denotes a capacity of the mind, not an abstract quality of the appearance. ‘Pure intuition’ is a kind of knowledge of an object that makes no reference to what belongs to sensation. So this, by its explicit reference to our knowledge on the one hand,

and of the abstraction of sensation from objects on the other, seems to be something in between the two other terms.

But, as a result of Kant's argument for the subjectivity of space in the *Transcendental Aesthetic*, all *a priori* knowledge of objects must be supplied by the knowing subject. Therefore, that which is abstracted from the empirical (sensation) must belong to our way of intuiting things and so must belong to the mind *a priori*. In this way, the three terms really refer to the same thing, though thought from different points of view. 'Form of appearance' is 'pure intuition' in so far as certain aspects of an appearance, an empirical object, is abstracted and so it is a form from the point of view of an object. 'Form of sensibility' is 'pure intuition' in so far as our capacity to be affected by objects is concerned and so it is a form from the point of view of the subject. This identity of the referent is emphasised twice by Kant in the introductory section of the *Transcendental Aesthetic*.

So if I separate from the representation of a body that which the understanding thinks about it, such as substance, force, divisibility, etc., as well as that which belongs to sensation, such as impenetrability, hardness, color, etc., [i.e., I conceive of the form of appearances] something from this empirical intuition is still left for me, namely extension and form. These belong to the pure intuition, which occurs *a priori*, even without an actual object of the sense or sensation, as a mere form of sensibility in the mind. (A20-1/B35)

[W]e will then detach from the latter [sensibility] everything that belongs to sensation, so that nothing remains except pure intuition and the mere form of appearances, which is the only thing that sensibility can make available *a priori*. (A22/B36)

Space, as pure intuition is therefore both a capacity of the mind and the form of objects, and these are both the same thing, i.e., the framework within which sensations are ordered.¹ Such a framework, however, would appear to be a representation of a kind of object. It is something "in which" sensations are ordered and is therefore itself an intuitive representation.

With this in mind, let us turn to §26 of the *B-Deduction* and the distinction he draws there between space as a mere capacity for representing things as outer and as itself an object.

¹ This understanding of the terms 'form of appearances', 'pure intuition' and 'form of sensibility' agrees with Longuenesse's view (1998: 217-9).

[S]pace and time are represented *a priori* not merely as **forms** of sensible intuition, but as **intuitions** themselves (which contain a manifold), and thus with the dermination of the **unity** of this manifold in them (see the *Transcendental Aesthetic*)*. (B160-1)

* Space, represented as **object** (as is really required in geometry), contains more than mere form of intuition, namely the **comprehension** (Zusammenfassung) of the manifold given in accordance with the form of sensibility in an **intuitive** representation, so that the **form of intuition** merely gives the manifold, but the **formal intuition** gives unity of the representation. In the *Aesthetic* I ascribed this unity merely to sensibility, only in order to note that it precedes all concepts, though to be sure it presupposes a synthesis, which does not belong to the senses but through which all concepts of space and time first become possible. For since through it (as the understanding determines the sensibility) space or time are first **given** as intuitions, the unity of this *a priori* intuition belongs to space and time, and not to the concept of the understanding (cf. §24) (B160n-1n)

In the main body of the text Kant distinguishes between space as mere form and space as itself an intuitive representation. In the footnote he terms the former “form of intuition” and the latter “formal intuition”. He continues to say that the unity of the representation of space was treated as belonging only to sensibility in the *Transcendental Aesthetic*, but that the same unity in fact requires a synthesis. Kant says here that in the *Transcendental Aesthetic* he is talking of the same unity as the one that requires a synthesis. This is clear when he says that he “ascribed this unity merely to sensibility, only in order to note that it precedes all concepts”. For this must be a reference to the so called ‘first intuition argument’, since there he argues that space is essentially one, i.e., essentially unitary, and therefore an intuition rather than a concept.² Therefore what is termed ‘form of intuition’ in the *Transcendental Aesthetic* is the same as the “intuitive representation” in §26 of the *B-Deduction*. In other words, the pure intuition of space in the *Transcendental Aesthetic*, as given *a priori* as a unitary and infinite representation, is the formal intuition that presupposes a synthesis.

Here Kant says something about how space, as *a priori* intuition or formal intuition, is given and so Kant is here going beyond the scope of the expositions of the *Transcendental Aesthetic*. Kant claims here that only if the understanding determines sensibility can the concept of space be given as an intuitive representation. The question is then what this synthesis by which the understanding determines sensibility is. It is immediately clear that

² “It is essentially single; the manifold in it, thus also the general concept of spaces in general, rests merely on limitations.” (A25/B39)

this synthesis must be of a special kind. For it is not a synthesis in the sense of applying concepts, not even *a priori* concepts, since the synthesis in question “precedes all concepts”.

At the end of the sentence that refers to this synthesis Kant cites §24 of the *B-Deduction* and by turning to this section we get the answer to the present predicament.³ In this section Kant introduces ‘figurative synthesis’, a “synthesis of the manifold of sensible intuition, which is possible and necessary *a priori*.” (B151) This seems to be the synthesis of the kind we are looking for. For it is a synthesis of the manifold of sensible intuition, not of concepts. This synthesis is also transcendental since it not only takes place prior to experience but makes other *a priori* knowledge possible. So, on Kant’s account of transcendental knowledge at A56/B80-1, this synthesis is transcendental cognition because it explains how *a priori* knowledge is possible. The account of the figurative synthesis is then that which will explain the genesis of space as an *a priori* intuition.

Kant’s claim that there is a synthesis of intuition that is prior to experience seems puzzling on two scores. Firstly, what power of the mind can produce a combination when there is nothing empirical there to put together? Kant’s answer is that figurative synthesis belongs to the faculty of imagination, in particular, it is the “transcendental synthesis of imagination” (B151). Imagination is defined as “the faculty for representing an object even **without its presence** in intuition” (B151). Further, this faculty belongs both to sensibility and the understanding. It belongs to sensibility in the sense that all our intuition is sensible and imagination is the faculty for representing in intuition. But as a synthesis it is an act of the subject and not merely a capacity to be affected and so it belongs to spontaneity rather than receptivity. This allows Kant to say “[t]his synthesis is an action of the understanding on the sensibility” (B152). We have seen that Kant uses precisely this expression in §26 when explaining what the act that first gives space and time as intuitions. Since Kant at this point refers to §24 it must be concluded that it is through this transcendental synthesis of the imagination that space is first given as an *a priori* intuition. So, we can gather from what has been said that through transcendental imagination a synthesis is possible *a priori*, and this synthesis is required for the intuitive representation of space.

The second aspect that appears peculiar with regard to the figurative synthesis is what such a synthesis of the imagination is a combination of. We have seen that Kant characterises it as a “synthesis of the manifold of sensible intuition, which is possible and necessary *a priori*.” What is the “manifold of sensible intuition” that is synthesised? It cannot be a

³ Waxman (1991: Chapter 2), Longuenesse (1998: 216) and Friedman (2000: 198) all make the same connection between §24 and §26 of the *B-Deduction*.

synthesis of parts of space since space, as a whole, precedes its parts. To begin to see what is being synthesised we must turn to a later part of §24. Here Kant explains how it is that we are conscious of ourselves only as we appear to ourselves, not as we are in ourselves. This is because we know ourselves only by being internally affected. In particular, we only first become aware of succession and therefore of anything determinate in inner sense by attending to drawing a straight line in thought and abstracting the manifold in space and so only attending to the action with regard to the determining of inner sense. Here Kant is referring to a kind of motion (drawing a straight line) from which everything empirical can be abstracted and only the affection of the understanding on inner sense is considered. Now, Kant further claims that motion understood in this way is 1) what essentially constitutes geometrical construction and 2) is the figurative synthesis.

This is not altogether clear since he is talking about this motion in terms both of inner and outer sense and focuses on inner sense in the main body of the text, which reads,

We also always observe this in ourselves. 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 [...] Motion, as action of the subject (not as determination of an object),* consequently the synthesis of the manifold in space, if we abstract from this manifold in space and attend solely to the action in accordance with which we determine the form of **inner sense**, first produces the concept of succession at all. (B154-5)

However, Kant refers more explicitly to this motion in relation to outer sense in the footnote.

* Motion of an **object** in space does not belong in a pure science, thus also not in geometry; for that something is movable cannot be cognized *a priori* but only through experience. But motion, as **description** of a space, is a pure act of the successive synthesis of the manifold in outer intuition in general through productive imagination, and belongs not only to geometry but even to transcendental philosophy.

So Kant says in no uncertain terms that motion as description of a space, e.g., the drawing of a line or the drawing of a circle is what constitutes an *a priori* construction of geometrical objects and that the same motion is at the same time the figurative synthesis, i.e., that which makes the representation of space as pure intuition possible. In this way this motion “belongs not only to geometry but even to transcendental philosophy.” As the footnote makes clear, the

figurative synthesis of the manifold in outer intuition is a kind of motion. The explanation of the intuitive representation of space has then led to the idea that it is given through a ‘figurative synthesis’ by means of the productive imagination. This act is characterised by Kant as “motion, as action of the subject”.

B) On the question of the possibility of construction in pure intuition

It is evident from the *Transcendental Exposition of Space* that Kant’s conception of geometry as a synthetic *a priori* science is closely connected to his view of space as a pure intuition.⁴ Further, in the ‘direct argument’ for transcendental idealism it is the possibility of the transcendently idealistic view of space as a pure intuition that explains how the synthetic *a priori* propositions of geometry are possible. Kant thinks that it is the ability of his conception of space to account for the possibility of geometrical knowledge that in the end shows why his view must be preferred to rival theories. Now we have seen that Kant establishes an even deeper connection between the pure intuition of space and geometrical knowledge. What we find in the *B-Deduction* is that one act, that “of the successive synthesis of the manifold in outer intuition in general through productive imagination” is both the synthesis by which space becomes a formal intuition for us and the synthesis by which we generate geometrical objects. In Kant’s words, motion, as act of the subject, “belongs not only to geometry but even to transcendental philosophy”.

My concern in this chapter is to show how Kant understands the notion of the pure intuition of space. However, in the previous sub-section it has been established that this requires an account of the figurative synthesis that is a motion, as act of the subject. In order to give an account of the pure intuition of space it is necessary to understand how this synthesis can play the role Kant claims it does. But an account of this at first seems to be something of a mystery. How can we explain that a motion, as act of the subject makes the representation of space possible? Here Kant’s remark that the synthesis belongs to both geometry and to transcendental philosophy is the key. By considering what role the synthesis plays in geometrical construction we will be able to explain the role it plays in making the pure intuition of space possible.⁵ Further, as the philosophical foundations of geometry is something that very much concerned Berkeley (as I will show in Chapter 5), it will be useful to consider this connection between the pure intuition of space and geometrical knowledge,

⁴ See Shabel (2004) for an illuminating interpretation of the *Transcendental Exposition*.

⁵ This approach is similar to Friedman’s (2000) take on the issue. His view will be the main topic of Section 2.

as it will facilitate for the comparison of the two thinkers. In particular, I will be concerned to account for the way that the schema of a geometrical concept and the construction of the concept, through the productive synthesis of imagination functions together to make universal and *a priori* geometrical knowledge possible. This is an aspect of Kant's transcendental philosophy that will be a useful tool for understanding and explaining some features of Berkeley's theory of geometrical knowledge that may otherwise seem puzzling.⁶

Kant explains some aspects of his theory of construction in the *Transcendental Doctrine of Method*. To construct a concept means to "exhibit *a priori* the intuition corresponding to it." (A713/B741) He then explains how he understands this statement by considering the case of constructing the concept 'triangle'.

Thus I construct a triangle by exhibiting an object corresponding to this concept, either through mere imagination, in pure intuition, or on paper, in empirical intuition, but in both cases completely *a priori*, without having borrowed the pattern for it from any experience. (A713/B741)

We construct a triangle, Kant says, either in imagination or by drawing it on paper. In the former case it is a construction in pure intuition and in the latter in empirical intuition. But both constructions are *a priori*. This is puzzling because Kant seems to be saying that the figure drawn on paper is both empirical and *a priori*, which seems contradictory. He immediately clarifies this.

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 constructing the concept, to which many determinations, e.g., those of the magnitudes 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. (A713-4/B741-2)

The empirical figure is made fit to demonstrate something universal. This is possible because we can abstract from the particular length of the sides and size of the angles. These features, though they are manifest in the empirical figure, are disregarded in the proof. Instead, "we have taken account only of the action of constructing the concept". It is in this sense that the empirical figure can exhibit the concept *a priori*.

⁶ See Chapter 5.1B.

But what does it mean to take account only of the action of constructing the concept? How does that particular kind of abstraction yield a demonstration that is universally valid? In order to answer these questions I will begin by considering the distinction between mathematical and mechanical construction. These are two distinct ways to arrive at propositions concerning geometrical figures. On Kant's view, a proof, for example the proof that a triangle has internal angles equalling two right angles, can be arrived at in two different ways, either mechanically or mathematically and geometrically. Wolff makes this distinction in his geometrical works and it is referred to by Kant in the following passage of the *First Critique*.⁷

The former [determining an object in accordance with empirical intuition] would yield only an empirical proposition (through measurements of its angles), which would contain no universality, let alone necessity, and propositions of this sort are not under discussion here. The second procedure [determining an object in accordance with pure intuition], however, is that of mathematical and here indeed of geometrical constructions, by means of which I put together in a pure intuition, just as in an empirical one, the manifold that belongs to the schema of a triangle in general and this to its concept, through which general synthetic propositions will be constructed. (A718/B746)

A mechanical proof would be like the one Wolff describes in his *Matimatisches Lexicon* (1965: 506-7).⁸ This proof requires using tools, such as a compass that is open to the same degree in different parts of the diagram in order to compare and reconstruct the angles in different parts of the figure. In this procedure the success depends on the exactness of the instrument and the skill and technical knowledge of the constructor. In this sense the resulting judgement is empirical and contingent.

A geometrical proof would be like the one Euclid gives in *Elements*, I, Proposition 32, which Kant describes in the *Transcendental Doctrine of Method* (A716-7/B744-5).⁹ This proof proceeds in the following way. First a triangle is constructed, a line is extended and a line parallel to one of the sides of the triangle is constructed. Then the relations of the angles are determined (i.e., the equality of the three internal angles of the triangle with two right angles) on the basis of already established general propositions, such as Euclid, *Elements*, I, Proposition 29 “*A straight line falling on parallel straight lines makes the alternate angles*

⁷ See Shabel (2003: 96-101)

⁸ Shabel (2003: 98-101) gives a detailed account of this procedure.

⁹ Shabel (2003: 97-8) also gives an illuminating account of this procedure.

equal to another, the exterior angle equal to the interior and opposite angle, and the interior angles on the same side equal to two right lines.” What is needed for this proof is the definition of a triangle (Euclid, *Elements*, I, Definition 19), Postulates 1 and 2, and some procedure for constructing a triangle, e.g., *Elements*, I, Proposition 22 (see Shabel, 2003: 97). This proof does not require that any specific size be assigned to any of the angles, and so does not require any measurement with instruments. It requires only that the figure and some further lines are (or more accurately, as we shall see shortly, *can be*) constructed. Then, by means of universal propositions it is possible to deduce the relevant spatial relations *a priori*.

We may now wonder why Kant bothered mentioning the case of merely imagining a geometrical figure in pure intuition when he has explained at length how we can acquire *a priori* knowledge by treating an object of empirical intuition in a certain way, i.e., ‘mathematically’. The answer is that for Kant to exhibit *a priori* the intuition corresponding to the concept is to take “account only of the action of constructing the concept”. Taking this into account means that we only need to be aware of the instructions by which the concept can be constructed.¹⁰ In the case proving that the interior angles of a triangle equal two straight angles we need only know how to construct a triangle and how to extend lines, draw parallel lines, etc., and this is what Kant understands by constructing a concept in pure intuition.

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.” (A140/B179-80) We now have three related terms, the “image”, “concept” and “schema” of a pure sensible figure, such as a triangle. What is the relation between them and how are they connected to synthesis of the imagination? Kant explains this when he says,

In fact it is not images of objects but schemata that ground our pure sensible concepts. No image of a triangle would ever be adequate to the concept of it. For it would not attain the generality of the concept, which makes this valid for all triangles, right or acute, etc., but would always be limited to one part of this sphere. The schema of the triangle can never exist anywhere except in thought, and

¹⁰ This is particularly clear in the case of our knowledge of complex geometrical figures, such as the case of a chiliagon (a thousand-sided polygon). That we cannot form the image of a chiliagon was one of Ebenhard’s arguments against Kant’s critical philosophy. Kant’s reply is that construction in pure intuition does not require the actual production of the figure, not even the production of a mental picture. We only need to know how to go about constructing the figure, i.e., know the rule for the construction of the concept. See Shabel, 2003: 106-8, for a discussion of this dispute.

signifies a rule of the synthesis of the imagination with regard to pure shapes in space. (A140-1/B180)

The image is what is the figure actually drawn on paper or imagined in the mind etc. This image is empirical and never adequately corresponds to the concept. The concept, in turn, is the definition, such as “three lines enclosing a space”. The schema relates to the concept in a way that the image does not. The schema, as opposed to the image, is “adequate” to the concept because it is also an *a priori* representation of the object. The schema is the instruction for the procedure of the construction, the instruction for the act of construction or rule of the synthesis of the object.

In the case of a triangle, the instructions in question will be explanations for how to construct lines. Now the instructions for constructing geometrical figures in Euclidian geometry are found in the first three postulates.¹¹ They are instructions for generating a straight line through translation and generating circles by rotation. Further, the schema itself is a “product and as it were a monogram of pure *a priori* imagination”. I take this to mean that the set of instructions contained in the schema are instructions that the synthesis of the imagination can process and that have meaning only as the result of such an act. These acts are the describing of a space that Kant speaks of in §24 of the *B-Deduction* and were characterised as an act, as motion of the subject. What the pure synthesis of the imagination does it to follow these instructions, and that means that the pure synthesis of the imagination is the act, as movement of the subject, in accordance with the first three postulates of Euclidian geometry.

So far, I have given an account of the synthesis that makes the intuitive representation of space, i.e., the pure intuition of space, possible. I took my cue from Kant’s claim that this synthesis underlies both the possibility of geometrical construction and the representation of space. I then investigated Kant’s account of the role of the transcendental synthesis of imagination for geometrical construction. The result of this investigation is that the synthesis is understood as the act of movement by which geometrical figures are generated. This means that also the pure intuition of space is a result of certain motions of the subject. Such a claim sounds somewhat out of the ordinary. I will now give an account of how I understand motion, as act of the subject to be constitutive of the pure intuition of space. By this it will be possible

¹¹ The first three postulates are “1. To draw a straight line from any point to any point. 2. To produce a finite straight line continuously in a straight line. 3. To describe a circle with any centre and distance.” Euclid, *Elements*, I, P. 154)

to answer what is required for having a representation of space that is *a priori* and intuitive, how this representation is possible and what it consists of. This will allow some content to be given to the designation ‘pure intuition of space’ and this in turn will allow me to consider if Berkeley recognised something corresponding to this term.

2) Space and the human subject

The question is then: how we are to understand the notion that Kant speaks of in §24 of the *B-Deduction* and what is the nature of the subject that performs it? Michael Friedman, in his *Geometry, Construction and Intuition in Kant and his Successors*, 2000, has given an original and challenging answer to both these questions. He arrives at this interpretation through a consideration of the relation between the *a priori* representation of space and geometrical construction. This approach makes it a suitable topic in the present context. A number of other commentators have also treated of the connection between the pure intuition of space and the figurative synthesis. For example, Waxman (1991) and Longuenesse (1998) have both given impressive accounts of the structural interconnections and conceptual hierarchy in which the Kantian thesis of the determination of the understanding on sensibility is embedded. But I want to compare Kant with Berkeley and in order for such an external assessment, not to say criticism, to be possible, we must know what these Kantian terms refer to. Friedman’s analysis that focuses on Kant’s theory of geometry and on Helmholtz’ (mis)appropriation of Kant’s theory of space accomplishes precisely this and is therefore the focus of this section.

A) Friedman’s disembodied point of view

According to Friedman’s earlier (1992) view of construction and intuition the infinity of space is a consequence of the potential infinity that characterises geometrical construction. So space, represented as an infinite given magnitude, as it is presented in the second so-called ‘intuition argument’, is such because we can successively construct an infinity of spatial objects on the basis of straight edge and compass construction from a given line segment or pair of points (2000: 187). On this view space is represented as infinite in any of the three dimensions because we can construct a line that is potentially infinite in any of the three dimensions.

But as Friedman explains he has come to realise that for Kant it is the infinity of the pure intuition of space that allows for the successive generation of geometrical objects and for

the potentially infinite extension of geometrical objects such as a line. This, Friedman notes, is particularly clear in Schulze's review of the second volume of the anti-Kantian journal *Philosophisches Magazin*, a review that was based on Kant's own notes and the final result of which was also supervised by Kant. There Schulze says that "the geometrician expressly grounds the possibility of his task of infinitely increasing a space (of which there are many) on the original representation of a single infinite space as a singular representation, in which alone the possibility of all spaces proceeding to infinity, is given." (Allison, 1973b: 176)

Having reversed the explanation of geometrical construction and the pure intuition of space, the question for Friedman is then how the metaphysical space achieves this grounding of geometrical space. We have already seen that Kant explains this by appeal to the figurative synthesis which is a motion, as act of the subject, which first unifies the pure intuition of space into a formal intuition in which, through the same act, geometrical constructions are based. But Kant does not give any further details concerning this specific kind of motion. What is particularly useful with the way that Friedman approaches this issue from the point of view of the possibility of geometrical construction is that he can identify the precise kind of motion in question. In the following passage from Kant's notes to Schulze the possibility of geometrical construction is explained.

[T]hat the possibility of a straight line and a circle can be proved, not *mediately* through inferences, but only immediately through the construction of these concepts (which is in no way empirical), is due to the circumstance that among all constructions (presentations determined in accordance with a rule in a priori intuition) some must still be *the first* – namely the *drawing* or describing (in thought) of a straight line and the *rotating* of such a line around a fixed point – where the latter cannot be derived from the former, nor can it be derived from any other construction of the concept of a magnitude. (20: 410-11, quoted in Friedman, 2000: 189)

The relevant motions that are descriptions of space that ground or explain geometrical construction and so belong to geometry and to transcendental philosophy are the motions required for the construction of straight lines and the rotation of a line through a fixed point. It is these motions that constitute the act of the subject in the transcendental synthesis of imagination.

The acts of drawing a straight line or a circle are familiar to us. What is more difficult to grasp and what requires explanation is how these same acts can ground the pure intuition of space. What makes Friedman's article so interesting and important is that he attempts a

detailed account of this and it will be worthwhile to consider it in some length here. The first thing to consider is what can be said about the nature of the subject that has the form of outer intuition. Friedman claims that the subject of outer sense is itself in space (Friedman, 2000: 191). He takes this to be clear from the first a priority argument of the *Metaphysical Exposition*. This argument reads,

Space is not an empirical concept that has been drawn from outer experiences. For in order for certain sensations to be related to something outside me (i.e., to something in another place in space from that in which I find myself), thus in order for me to represent them as outside and next to one another, thus not merely as different but as in different places, the representation of space must already be their ground. Thus the representation of space cannot be obtained from the relations of outer appearances through experience, but this outer experience is itself first possible only through this representation. (A23/B38)

Kant is here describing the following situation. The human subject, the “I” or “me” referred to in that paragraph, is aware of certain sensations. By means of the pure intuition of space it is possible for us to represent these sensations as referring to something outside the subject in another place in space¹² and also enable us to represent the sensations as being in different places in space from each other. Friedman understands this to mean that the human subject contains the point of view from and around which the objects of outer sense are arranged (Friedman, 2000: 191). He does not explain how he gets this notion of point of view from this quote. But this interpretation seems to be plausible. Such orientation is required because not only are the sensations taken to be different but to be spatially different in the sense of being outside and next to each other. So not only are they spatially different in the sense of being further away or nearer from us or from each other. The sensations are also taken to be next to each other, which require a notion of the direction relative to us or some other thing, which in turn requires us to take up some point of view or perspective. What it means to have this point of view will be considered in some detail shortly.

Further, the motion associated with the figurative synthesis, the act of the subject, is on this view the movement by translation and rotation in and through space of this point of view, i.e., the very same motions that are foundational for geometrical construction. Also, it is

¹² Friedman (2000: 212n8 & 213n10) takes his ‘spatial’ reading of “outer” to be controversial in that it disagrees with Allison’s view that it has a non-spatial, that is to say, ‘ontological’ meaning of “distinct from me” (Allison, 1983: 83-6). However, Alison (2004, P. 101 & 466n8-9) has since accepted the spatial reading, which could now be said to be orthodoxy. See Falkenstein (1995) and Warren (1998), who both argue for the spatial reading

these two kinds of motion of the point of view that account for both the singularity or unity and the infinity or unboundedness of the pure intuition of space.¹³

To move in a straight line and to rotate around one or more axes in three dimensional space are continuous motions and therefore it is not possible to, as it were, ‘jump’ into one place that is not immediately connected with the place the subject was situated in the preceding instance. For, in the case of translational motion, we would not then have constructed one line but many smaller lines, similarly with rotational movement. So this motion guarantees that the form of outer intuition is singular and a unity.

On this account of the nature of the figurative synthesis we can finally explain how Kant can state what seemed so puzzling in §26 of the *B-Deduction*, that the unity of space requires a synthesis. The subject does so, not by adding parts of space (for space precedes its parts), but by being capable of a certain kind of movement that guarantees that there cannot be any gap in the representation of space (or, better, in space represented as an object). Further, the translational motion by itself continues indefinitely in one dimension, and in combination with the rotational movement it extends indefinitely in three dimensions. So the possibility of these motions also accounts for the infinity of the pure intuition of space.

So, the human subject, the “I” or “me” of the first a priority argument finds itself in the structure called the pure intuition of space by virtue of the circumstance that it is capable of certain kinds of movement and that it has the capacity to direct itself, so we are able to say of it that it continues to move in a straight line, or that it changes its direction, through having a ‘perspective’ or ‘point of view’. Further, as the a priority arguments aim to establish, these capacities, and consequently the intuition that is the subject of the *Metaphysical Exposition*, is wholly independent of actual sensation and is necessary for outer experience. Empirical spatial intuition occurs when we receive a sensation by being affected by an object that is in what Friedman calls “a spatial line of sight, as it were” (2000: 191). In other words, what is required for empirical cognition is that the *a priori* structure is in place and in addition that something affects us.

¹³ Friedman seems to hold that the greatest explanatory value of his theory in this question is that it can account for why perceptual space, that is, empirical space, is unitary and infinite (Friedman, 2000: 192). However, as Friedman has just been arguing, Kant claims that it is the pure intuition of space that is unitary and infinite whereas the space of any particular geometrical construction is always finite. At any rate, after having shown how he takes his theory to show how perceptual space is unitary and infinite he concludes the paragraph by a statement that seems to agree with my claim here. “And this also clarifies the sense, it seems to me, of the otherwise puzzling idea that metaphysical space – that is, the formal structure of perceptual space described in the *Metaphysical Exposition* – involves an “infinity in act [*actu infinitum*] (the metaphysically-given) [that] is not given on the side of the object, but on the side of the thinker.” (Friedman, 2000: 192)

I take this to mean that like, e.g., the construction of the chiliagon in pure intuition, the pure intuition of space is not actually constructed. Indeed, that would be an unreasonable demand in both cases and actually impossible in the latter case (because space can never be constructed in its entirety). Instead, we need only comprehend the act of constructing the object. In both cases the irreducibly simple components of the act are translational and rotational motion of the human subject.

What I want to consider now is what this subject is and what the ‘perspective’ or ‘point of view’ that belongs to the *a priori* structure of space amounts to. I want to show exactly what is at issue by noting that Hermann von Helmholtz, as Friedman points out (2000: 200), was the first to explicitly ground geometry on the conditions of free mobility. But Helmholtz’ understanding of the relevant conception of motion is based on muscular sensations of the human body, in particular “the impulse to motion, which we give through an innervation¹⁴ of our motor nerves” (Helmholtz, 1977: 123) and so for him space is fundamentally empirical (because our representation of it depends on the muscular sensations associated with certain kinds of movement). In order to move in the desired way we have to practice and learn through trial and error.¹⁵ As Helmholtz puts it in *The Facts of Perception*,

Suppose we namely ask whether there is a common characteristic, perceivable in immediate sensation, whereby every perception relating to objects in space is characterized for us. Then we in fact find such a characteristic in the circumstance that motion of our body places us in different spatial relations to the perceived objects, and thereby also alters the impressions made by them upon us. [...] space will also appear to us - imbued with the qualities of our sensations of motion - in a sensory manner, as that through which we move, through which we can gaze forth. Spatial intuition would therefore be in this sense a subjective *form of intuition*¹⁶, like the sensory qualities red, sweet and cold. (Helmholtz, 1977: 123)

It is almost comical that Helmholtz equates the subjectivity of space with sensory qualities of colour and taste since Kant explicitly warns us against illustrating the transcendental ideality

¹⁴ An innervation is for Helmholtz an act of putting certain motor nerves into an excited state, which consequently stimulate the muscles that contract and move the limbs. (Helmholtz, 1977: 123)

¹⁵ This takes place in early childhood and so it is a process that we are not conscious of, but something analogous to it can be seen, Helmholtz thinks, when we as adults try and learn the pronunciations of a foreign language (Helmholtz, 1977: 123).

¹⁶ Helmholtz uses (or misunderstands) the term ‘form of intuition’ in the sense of what is dependent on the subject and not given by the actual objects that causes sensation. See (Helmholtz, 1977: 122) and Schlick’s corresponding notes (Helmholtz, 1977: 166n16 & 167n20)

of space “with completely inadequate examples” such as “colours, tastes, etc.,” (B45). Helmholtz repeatedly claims that Kant was correct to understand space as a form of intuition. But Helmholtz thinks that the qualities of sensation are all forms of intuitions (Helmholtz, 1977: 122). By calling something a ‘form of intuition’ Helmholtz means only that the thing is a subjective representation or “sign” (Helmholtz, 1977: 122), rather than an external influence. From Kant’s point of view we must therefore take Helmholtz to have a thoroughgoing empirical conception of space. It is natural to wonder, then, how Kant can have a conception of certain kinds of motion of a subject that is a transcendental condition for the representation of space, rather than an empirical condition. In particular, if Helmholtz’ empiricist conception of space relies on the sensations of the human body, what notion of the subject can Kant be working with?

Friedman insists that the subject is, literally, ‘a point of view’, a disembodied subject. Indeed, he thinks that such a conception is required in Kant’s philosophy precisely because of the distinction made within it between the empirical and the transcendental, the distinction that Helmholtz fails to see.

[W]hat Helmholtz considers as belonging to the a priori or transcendental structure of spatial intuition involves, from a Kantian perspective, *empirical* rather than *pure* intuition. Helmholtz constructs the relevant group of rigid motion [translational and rotational motion] expressing free mobility of the perceiver in and through perceptual space from the muscular and kinaesthetic sensations of the subject as it voluntarily initiates such motions, which motions are essentially considered, therefore, as movements of the subject’s body. [...] For Kant, by contrast, the relevant group-theoretical structure involves only the motions of a disembodied point of view and has nothing to do, therefore, with any bodily sensations. Kant is concerned only with that “action of the understanding on sensibility” (B152) whereby the (transcendental) subject locates itself in space at a definitive point of view and with a definitive orientation. Indeed, Kantian pure, as opposed to empirical, intuition can, of course, involve no sensations or actual perceptions at all.” (Friedman, 2000: 202)

So according to Friedman the pure intuition of space is grounded on the motion of a disembodied subject, not the human body. The motion in question is accordingly not the motion of a body but ‘motion by imagination’ by a disembodied subject, as is clear when Friedman uses expressions such as “the subject imaginatively locates itself at a given point of view with a given orientation” and “this subject can also [...] imaginatively change the given

point of view and orientation by imaginatively moving in and through space.” (Friedman, 2000: 192)

Friedman thinks that the subject is disembodied because an account of the grounding of space in terms of bodily movement must, on his (as well as Helmholtz’) view, involve “sensations or actual perceptions”, something which of course is intolerable on Kant’s view. For according to the first a priority argument the representation of space is needed to locate sensations as outside us and as outside and alongside each other in the first place; and so, to ground the representation of space on sensation is clearly circular. Further, Kant explicitly states that even the sensations of sight, hearing and touch (what Kant takes to be in a sense ‘objective’ sensations, as we shall shortly see) are mere sensations, not intuitions (B44). Nevertheless, I will explain how I take it to be possible to understand bodily motion as belonging to the transcendental conditions of outer experience in sub-section C. First I will show support for this view, and so against Friedman’s conception of the subject as disembodied, in Kant’s own work.

B) Criticism of Friedman’s view

It is now my intention to challenge the account of the subject that grounds the pure form of outer intuition by figurative synthesis or “motion, as act of the subject” as being disembodied. There are two objections in particular that I believe present insurmountable difficulties for such a view. Firstly, I will show that the idea that a “disembodied point of view” cannot achieve the kinds of motion that I believe Friedman has convincingly shown must ground the singularity or unity and the infinity or unboundedness of space. Instead the motions in question must be done by something that has parts, i.e., a body. Secondly, there is a host of expressions that Friedman uses to describe the *a priori* structure of space that make reference to visual sensation. He speaks of the “point of view”, “line of sight” and “field of vision” of the subject. I will show that Kant could not take the capacity for receiving visual sensation to belong to the *a priori* structure of spatial intuition. Rather he would understand the capacity of tactile sensation to belong to this structure. This again makes it impossible to conceive of a disembodied subject and instead suggests an embodied subject as belonging to the *a priori* structure of spatial intuition.

I will begin by considering whether the subject can be conceived of as a disembodied point. There is no mention of the subject being such in the *Transcendental Aesthetic*, or in the *B-Deduction*. The only place where Kant considers the motion of a physical point is in the

Phoronomy, the first chapter of the *Metaphysical Foundations*. Indeed, it seems that Friedman has this account in mind. This comes out in a passage that is not immediately relevant here for it concerns what categories are involved in mathematical construction. Friedman states that he is concerned merely with purely relative or mathematical motion not the additional issues concerning judging true motion, and he appeals to the *Phoronomy* chapter as an instance of where Kant considers only this mathematical motion (Friedman, 2000: 214-5n24).

Suppose, therefore, that when we consider the motion involved in describing a space, we are concerned only with the motion of a point. This motion is supposed to both underlie both geometrical construction and the *a priori* intuition of space. It then seems that the ‘motion, as action of the subject’ should also be taken to be the motion of a point (I don’t see how else we are supposed to understand the claim that the subject is disembodied). Further, in both the first chapter of the *Metaphysical Foundations* and the first a priority argument there is an explicit reference to ‘place’. In the first a priority argument Kant clarifies the sense of “outside me” in a parenthesized clause “(i.e., to something in another place in space from that in which I find myself)” (A23/B38). In the first chapter of the *Metaphysical Foundations* Kant says that “the place of a body is a point” (*Metaphysical Foundations*, 4: 483). He clarifies this with an example. When measuring the distance (distance being the shortest line between two points) between two bodies, what we do is to measure, from the central point of one body to the central point of the other. In this sense “for each of these bodies there is only one point constituting its place.” (*Metaphysical Foundations*, 4:483). Reading this sense of ‘place’ into the first a priority argument, the “place that I find myself” is consistent with the view that the “I” or “me” referred to there is a point.

However, the support for the idea that the subject is a point based on first chapter of the *Metaphysical Foundations* does not work. For what Kant says in Chapter 1, Explication 2, Remark 1, of the *Metaphysical Foundations* implies that he holds that a point cannot move through rotation. According to Kant (*Metaphysical Foundations*, 4: 483) the fundamental division of kinds of motion are rotating movement that is a change of outer relations of a thing without being change of place, and progressive motion, which is motion by change of place. What is crucial about this is that a point can only move by changing its place.

Now a body can move without changing its place, as in the case of the earth rotating around its axis. But its relation to external space still changes thereby; since it turns, for example, its different sides toward the moon in 24 hours, from which all kinds of varying effects then follow on the earth.

Only of a movable, that is, physical, *point* can one say that motion is always a change of place.
(*Metaphysical Foundations*, 4: 482)

A point does not have different sides and no axis to turn around. So if the subject of the first apriority argument is a point, it cannot move in the way that it is supposed to, i.e., by both translation and rotation. According to Friedman the possibility of the construction of a line and circle in pure intuition depends on the capacity of the subject to move by translation and rotation. But if this is so, then the construction of a circle in pure intuition, requires that the being to which this representational capacity belongs must be an entity that has different sides. Corresponding to this idea, the subject that imaginatively can change its orientation cannot be a disembodied 'point of view' because in order to change its perspective or direction in space through a continuous motion (i.e., to change its outer relations to a given space without changing its place) it must be able to move by rotation. But according to Kant the only thing that can move by rotation is a body, something that has parts. So a disembodied point of view cannot be sufficient for the kind of motion required by the subject that belongs to the *a priori* structure of spatial intuition.

Now to my second problem with Friedman's account. This is the problem with construing the 'perspective' or capacity to come into contact with outer empirical objects that belong to the pure intuition of space in terms of the capacity to have visual sensation. Friedman repeatedly speaks of vision when he refers to the subject of the first apriority argument. It belongs to the structure of pure intuition to have a perspective, "the form of outer sense contains the point of view of the subject". (Friedman, 2000: 191) Empirical spatial intuition takes place within this formal structure. This happens, according to Friedman, when,

an object spatially external to the point of view of the subject affects this subject – along a spatial line of sight, as it were – so as to produce a corresponding sensation in it; and it is in this sense, therefore, that the pure form of (spatial) sensible intuition expresses the manner in which we are affected by (outer) intuition. (Friedman, 2000: 191)

When Friedman says that "the form of outer sense contains the point of view of the subject" this means that the subject has the capacity to be affected by objects and when this happens,

i.e., when an outer object comes into the “line of sight, as it were”¹⁷ of the subject, then sensations are produced.

Let us then consider how we are to understand the role of a capacity to perceive that seems to be implicit in the very possibility of having the representation of space. Kant’s most detailed discussion of the constitutive cognitive role of the senses can be found in the *Anthropology from a pragmatic point of view*. Of particular interest is his discussion of the sense of touch and vision. They are, together with hearing, the “more objective [...] that is, they contribute, as empirical intuition, more to the cognition of the exterior object” (*Anthropology*, 7: 154). Of course, in the *Anthropology* the concern is with empirical intuition whereas in the *First Critique* the subject matter is pure intuition. Nevertheless, on Friedman’s view, the account of pure intuition involves the capacity of coming into potential perceptual contact with all spatial objects. So the account of the subject of pure intuition must have the resources that explain how it can come into contact with empirical objects. Indeed, Kant himself says in the *Anthropology* that these “more objective” senses are involved in cognition of objects precisely as outer. “These three outer senses [touch, hearing and sight] lead the subject through reflection to cognition of the object as something outside ourselves.” (*Anthropology*, 7: 156)

With regard to the sense of sight Kant says that “it comes nearer [than hearing] to being a pure intuition (the immediate idea of a given object without admixture of evident sensation).” (*Anthropology*, 7:156) However, the sense that is the most like pure intuition, in so far as it is connected to “the immediate idea of a given object” is touch. About it he says “this sense is also the only one of immediate external perception; therefore, it is the most important and the most reliably instructive of all the senses.” The way that it is the most important is, significantly, that it must be presupposed by the other senses if perception of an outer object is possible. Sight, therefore, is clearly subordinate to tactile experience, and Kant emphasises precisely this point when he says,

Without this sense organ [touch] we would be unable to develop a concept of any bodily form, and it is to the perceptions of this sense that the other two senses of the first class [hearing and sight] must originally be referred in order to produce empirical knowledge.¹⁸ (*Anthropology*, 7:155)

¹⁷ Friedman clearly indicates that the expression “line of sight” should be taken in a metaphorical sense. I take his meaning to be that it is not strictly speaking a line of sight because that would involve actual visual sensation. Instead the line of sight is only the capacity to come into visual contact with objects.

From this it is clear that the possibility of perception of outer objects does according to Kant not depend on visual sensation and for this reason it is not necessary for the “I” or “me” of the first a priority argument even to have the capacity of visual sensation. Rather, if we take into account the claims made by Kant concerning the hierarchy of the different senses then Kant’s view must be that the pure intuition of space requires the capacity for having tactile sensations.¹⁹ If this is correct, however, then it is hard to maintain that the subject that is in space is a disembodied point of view, rather, we are dealing with the bodily movements of a human being.

C) The problem of embodiment and its solution

But there is of course something peculiar with taking the body to be included in the *a priori* structure of intuition. For the body of the human being is, it would seem, nothing but an empirical object. It cannot be part of the *a priori* structure of the very possibility of such an object. For then our account would appear wholly circular. Since the pure intuition of space is a requirement for the ordering of sensations it cannot itself be composed of sensations. On this line of argument, the conception of the disembodied point of view must be correct because embodiment cannot be a requirement for the subject of figurative synthesis. The idea of a point of view is more abstract, further removed from empirical conditions of experience, and this is in the end, I believe, why Friedman’s account seems plausible.

This circularity only appears, however, if we claim that bodily sensations are part of the *a priori* structure of outer experience. But there is more involved in embodiment than mere sensations of the body. In particular, as I have argued, two capacities that are neither in any obvious way sensations nor dependent on sensations are integral to having a body. These are the capacities to move through translation and rotation and the capacity to have tactile

¹⁸ Kant continues his discussion of the senses in the *Anthropology* with a consideration of what sense is the most dispensable and which sense would incur the most serious loss. When answering the latter question, he does not even consider the possibility of not having the sense of touch.

¹⁹ In the pre-Critical *Inquiry* Kant also emphasises the priority of tactile over visual sensation with reference to the concept of distance. We understand distance in terms of tactile experience, whereas sight only allows us to infer that tactile sensation will or will not take place. “[B]odies are *at a distance* from each other if they *are not touching* each other. That is the exact meaning of the expression. Now, suppose that I ask what I mean by ‘touching’. Without troubling about the definition, I realise that whenever I judge that I am touching a body I do so by reference to the resistance which the impenetrability that the body offers. For I find that this concept originates ultimately from the sense of touch. The judgement of the eye only produces the surmise that one body will touch another; it is only when one notices the resistance offered by impenetrability that the surmise is converted into certain knowledge.” (*Inquiry*, 2: 288)

sensations. The minimal requirement for rotational movement is that the mover has parts so that it can turn around its own axis in one or more dimensions. This capacity clearly requires a body in the sense of a thing that has parts but makes no references to any actual sensation, or to any particular bodily shape. Likewise, the capacity for having tactile sensations implied in embodiment does not require a reference to actual sensation and therefore this receptivity to sensation also belongs to the *a priori* structure of outer experience. Because these aspects of embodiment are not only *a priori* but explain how other *a priori* knowledge is possible, they are transcendental conditions of embodiment.

It is because both Friedman's Kant and Helmholtz take bodily movement in the relevant sense to necessarily involve actual sensation that they arrive at their respective views on the nature of space and the nature of the subject. Helmholtz takes the subject to be embodied but gives up on the Kantian project by holding that space is an empirical representation. Friedman's Kant takes the subject to be disembodied to save the claim that space is in first place an *a priori* representation. But because the act required in the synthesis that makes the pure intuition of space possible as an object are the motions required for the generation of geometrical figures, the demands on the subject do not, I have argued, allow for a merely disembodied subject. For this reason I have put forward a third alternative to Helmholtz' and Friedman's view. We could wonder if my alternative can really be put forward as Kant's view. I think that nothing I claim is contradicted by Kant and I have shown that what I claim to be transcendental conditions of embodiment have some textual support in Kant's critical work. The conclusion of this Chapter is therefore not a departure from Kant but an interpretation of what Kant would have had to say if he had developed his account of motion, as act of the subject that he hinted at in the footnotes in the *B-Deduction*. Further, I have argued that Kant ought to have developed this account because it is required if he is to claim to legitimately distinguish his conception of space from Berkeley's view.

I have argued that the relevant aspects of bodily movement involved in the pure intuition of space do not make reference to actual sensation. This conclusion allows me to salvage what I take to be correct with Friedman's and Helmholtz' view, while at the same time avoiding the incongruence with Kant's views that both those positions have. Firstly, the view I have presented holds that the subject in whose mind the pure intuition of space lies ready is embodied; and so can actually perform the movements required of the productive synthesis of the imagination. At the same time the representation of space is still *a priori*, nothing that makes reference to actual sensation is included in the account. On this view the subjective constitution that makes the pure intuition of space possible as an object for us are

two transcendental conditions of embodiment: being such that translational and rotational movement is possible ('having parts') and being receptive to tactile sensation.

We can be more specific and state that the motion, as act of the subject, which I have interpreted as the capacity of a subject to move by translation and rotation, is the aspect of pure intuition that belongs to the understanding and to its ability to determine sensibility. The capacity to be affected by tactile sensation, on the other hand, is what essentially constitutes the receptivity of sensibility (in so far as the pure intuition of space is concerned). The pure intuition of space is then a framework constituted by these transcendental conditions of embodiment.

Chapter 5: Berkeley on space and geometry

In Chapter 4 I presented and defended my view on Kant's understanding of the nature of the pure intuition of space. The representation of space is a framework for encountering things as outside us and outside each other that is to be understood as a synthesis of bodily motion of the subject and the capacity to be affected by the sense of touch. The motion of the subject is nothing but the figurative synthesis whereby the spontaneous faculty of understanding determines sensibility. The capacity for tactile sensation is nothing but the receptivity of sensibility as far as outer sense is concerned. This is a conception of pure intuition that is sufficiently rich to be compared with Berkeley's positive conception of space and this is the task of this chapter.

Accordingly, this chapter has two sections. In the first I will consider some aspects of Berkeley's theory of geometry. My aim in this section is mainly negative. I will show that Berkeley's theory of geometry does not commit him to a merely empirical conception of space in Kant's sense of the word. Rather, in Berkeley's mature conception of the nature of geometry, geometrical demonstrations are conversant about 'general ideas' and yield universal propositions. In the second section I will consider Berkeley's positive theory of space and show that he has transcendental conditions for outer experience that are similar to Kant's, sufficiently similar to conclude that Berkeley understood the senses to intuit *a priori* and so that Kant's epistemological argument against Berkeley's philosophy fails.

1) Berkeley on the philosophical foundations of geometry

There are two reasons why it might be thought that Berkeley's conception of geometry is merely empirical and consequently that he would have no reason to believe that the senses could intuit *a priori*. Firstly, Berkeley did at some stage of his life adhere to the geometry of 'minimum sensible'. This is the theory that geometrical objects are sensible objects composed of a determinate number of units, sensible 'points' or 'minima'. This is an extreme empiricist view for two reasons. Firstly, the objects of geometrical demonstration are the particular empirical objects used in diagrams. Secondly, extension and distance are themselves composed of sensible minima; and so space itself is composed of such minima. The dependence of any spatial notion on sensible minima led R. Gray to state that

“Berkeley’s concept of space, I repeatedly stress, cannot be fully understood without an understanding of the minimum sensible.” (1978: 418) This is an important statement to evaluate since if it is correct it would vindicate Kant’s characterisation of Berkeley’s conception of space as merely empirical.

Secondly, Berkeley forcefully rejects the notion of abstract ideas. This means that according to Berkeley there are no objects devoid of particular sensible properties. On this view the status of geometrical objects is problematic. A triangle, for example, seems to be something general and indeterminate with regards to sensible properties. Again, this could be seen to entail that for Berkeley geometrical objects must be empirical particulars and so that our knowledge of the properties of space are all obtained by empirical means. If this is the case then nothing *a priori* can be included in the representation of space.

In this section I will consider the notion of minimum sensible and the rejection of abstract ideas. With regards to the geometrical theory of minimum sensible the conclusion will be that Berkeley rejected it around the time of the *Principles*.¹ This is a claim that I believe, has been conclusively shown by D. Jesseph’s (1990, 1993 & 2005) work on Berkeley’s theory of geometry. Further, Berkeley changed his views also with regard to the criticism of abstract ideas, specifically with regard to geometrical knowledge and brought his theory of geometry into line with the common view that it is an *a priori* science. For these reasons Berkeley’s considered view of geometry is not an obstacle for the possibility of him having an understanding of space as an *a priori* intuition.

A) Berkeley’s geometry of minimum sensible

In the *Commentaries* Berkeley proposes to revise the science of geometry. The reason for this is that he takes Euclidian geometry to be mistaken about both its object and its method. At the time of the *Commentaries* the general view that emerges there is that geometry as it is traditionally understood is wrong on both accounts.² Berkeley thinks geometry should be a

¹ This is not to say that he also rejected the existence of minimum sensible, or that he took it to have no import in a phenomenology of vision. He clearly thinks that it does (see NTV, §80-3). But as I will argue in Section 2, Berkeley came to think that no geometrical description of sensation could be merely visual, and so talk of the minimum visual (e.g., a visual point or collection of visual points) will never be a description of what we are really sensing but must always contain an element of tactile sensation or tactile imagination.

² Though things are not quite that simple. Berkeley has entries that seem to be mutually inconsistent on this issue and a number of the entries suggest his later view in the *Principles*. For example, §254 “Mem: a great difference between considering length without breadth, and having an idea of or imagining length without

largely empirical science but it has been misconstrued as a largely (perhaps entirely) *a priori* science. It should, he holds, be about sensible things and it should proceed empirically while in fact it concerns abstract entities (such as ‘breadth-less length’, i.e., line) and proceeds by definitions and axioms. Berkeley clearly opposes this view when he claims that “[s]ense rather than reason & demonstration ought to be employ’d about lines & figures” (N 466). What makes this theory hugely important in this study is that Berkeley actually tries to work out an (in Kant’s terminology) empiricist and transcendental realist geometry. We saw in Chapter 2.1B that Kant regarded the conclusion of Leibniz’ theory of space as something merely empirical to be that it renders geometry merely empirical, and he takes this to be a *reductio* of Leibniz’ conception of space. However, the young Berkeley on the contrary takes the empirical conception of geometry to be correct. Consequently, the young Berkeley did not take space to be an *a priori* representation. First I will give an account of the theory of minimum sensible and some problems that it faces, then in the next sub-section I will explain why and how Berkeley rejected it and moved towards the conclusion that geometrical knowledge is *a priori*.

The prominent theory of geometry presented in the *Commentaries* is based on a smallest sensible unit or ‘point’. The sensible entity that Berkeley thinks should form the basis of geometry is the minimum sensible. It is the smallest perceivable unit of either vision (minimum visible) or of touch (minimum tangible).³ Instead of geometrical objects being divisible indefinitely and an indefinite number of points being assigned to any figure, Berkeley’s theory operates with a finite number of minima that cannot be further divided. If we want to measure an object we simply count the number of minimum sensible ‘points’ that

breadth”, §260 “Suppose an inch represent a mile. $\frac{1}{1000}$ of an inch is nothing, but $\frac{1}{1000}$ of the mile represented is something therefore $\frac{1}{1000}$ of an inch tho’ nothing is not to be neglected, because it represents something *i.e.* $\frac{1}{1000}$ of a mile” and §261 “Particular Determin’d lines are not divisible ad infinitum, but lines as us’d by Geometers are so they not being determin’d to any particular finite number of points. Yet a Geometer (He knows not why) will very readily say he can demonstrate an inch line is divisible ad infinitum.” Though these entries are not representative of the general view put forward in the *Commentaries* it seems reasonable to conclude, with Jesseph (1993: 83), that while writing the *Commentaries* and also the NTV (as we will see shortly) Berkeley’s thought on the nature of geometry was in a process of change. I will not consider this ambivalence any further but consider the *Commentaries* as a statement of what I have called Berkeley’s ‘early view’ on geometry.

³ I will not here consider the difference between the minimum visible and the minimum tangible. For the exposition of the theory of minima in the *Commentaries* it will be sufficient to consider the unit to be merely a minimum sensible.

it contains. For example, Berkeley thought that the diameter of the moon was about 30 minimum visible (NTV, §44). If we want to know the circumference of a circle we likewise simply count the number of minima. Geometry is then reduced to sensing and counting sensible points. This is certainly a very simple operation to learn and Berkeley accordingly thought that his new kind of geometry would be much easier than the Euclidian kind. “I’ll teach one the whole course of *Mathematiques* in $\frac{1}{100}$ prt the time that another will.” (§385)

Berkeley was initially very enthusiastic about his invention. This was not only due to its methodological simplicity. Since the minima cannot be divided, all lengths will be expressed as integers, which will also make actual calculation much easier (§414). The geometry of minimum sensible further seems to solve difficult classical problems with ease. Two examples of problems that Berkeley thinks can now be solved are:⁴ firstly, the problem of determining if a straight and a curved line have equal lengths. This problem is solved simply by counting the respective number of minima they contain and seeing if they are equal in number (N 516). Secondly, the problem of ‘squaring the circle’, i.e., the challenge to construct a square with the same area as a given circle by using only a finite number of steps with compass and straightedge. Berkeley claims to be able to solve this for any given circle by constructing a square whose area contains as many minima as the circle (§249-51, 295).

Not only is the method and object of Berkeley’s geometry completely different from traditional Euclidian geometry, the results are also completely unlike what we would normally have expected. In fact, Berkeley’s revolution in geometry is so radical that, according to Jesseph, (1990: 315) “nothing of use or interest in Euclidian geometry would survive”. For example, the ratio of the diameter to the circumference of a circle would on Berkeley’s view always be expressible as a rational number and it would differ between circles with different radii. In Euclidian geometry this ratio i.e., pi, is a constant and it is irrational. Some other differences would be that not every line can be bisected as is the case in Euclidian geometry (*Elements*, I, 10) but only those with an even number of points (§267, 276) and that the Pythagorean Theorem is false (§500). The list can be extended much further⁵.

Various problems with the coherence of the theory of the minimum sensible have been raised by among others Gray (1978: 429-33) and Jesseph (1990: 317-8; 1993: 67-9;

⁴ For a more substantial catalogue of these issues see Jesseph (1990: 313-5, 1993: 59-61, 2005: 280-1)

⁵ See Jesseph (1990: 314-5, 1993: 62; 2005: 280-1)

2005: 281). The one that to my mind is the most serious is the claim that the question of what shape of the minimum sensible is necessarily leads to absurdities. As extended it would seem that they must have some particular shape. But no one shape fits the requirements. The minimum sensible must be the same size in all directions, i.e., has the shape of a circle, because otherwise lines consisting of an equal number of minima would in some cases have unequal length. If they were square, for example, then a diagonal line would seem to have the same number of minimum sensible as the side of a square, but the diagonal is visibly longer. For example, in chess the board has as many squares on the diagonal as it has on its side. The belief that the diagonal a1-h8 requires a greater number of moves to be traversed and not the same number of moves as a1-a8 is a common mistake among beginner chess players since they are accustomed to judge the length from one place to another by means of distance and not by means of the number of squares, as is done in chess and in Berkeley's geometry of the minimum sensible.

I am not entirely convinced by this line of argument against the minimum sensible. It seems that it is assuming that the minima are somehow on the object independently of the perceiver. For example, the case of the chessboard assumes that squares are printed on a piece of wood or paper or some such, or that a grid or net is placed over the object. But would it not be more plausible to take Berkeley to understand the minimum sensible to be directed from the perceiver (or that the grid is attached to us and follows our point of view) so that when I count the squares in the diagonal the base of the first square would lie at a 45 degree angle at the bottom left corner of the board? In that case the number of squares in the diagonal would be more in number than the squares on the side.

To this it could be replied that a square would not fit if placed at a 45 degree angle in the corner of two straight lines. Further this issue of filling a plane becomes problematic also for considering the minimum sensible as being circular. The minimum sensible must cover a plane, as we determined the area of a figure by counting the number of minimum sensible that it contains. But circles of the same size cannot cover a plane without overlapping. Squares could cover a plane in this way, but then we are led to the problems mentioned above. So it appears that the minimum sensible must have neither a circular nor a square shape and that it must have both, but this is absurd.

It is however not clear if the objections really point to an internal inconsistency rather than a mere incongruence with Euclidian geometry. For example, while it is clear in Euclidian geometry that circles cannot fill a plane without overlapping this might not be the case with the minimum sensible. The 'gap' between the circles would be smaller than a

minimum sensible and so not perceivable and on Berkeley's view, we might think, therefore non-existent. The same would apply to the parts of the square minimum sensible that do not fit on the diagonal of the chessboard. Perhaps then, Berkeley's theory is more strange than incoherent.⁶

At any rate, what is more important than these possible internal inconsistencies is the fact of its manifest disparity with Euclidian geometry. A natural reaction to the rejection of Euclidian geometry could be to take that as a ground for the refutation of the principles that leads to such a dismissal. Jesseph states that,

[i]f an analysis of the principles of human knowledge reveals that classical geometry is not a secure body of knowledge, then we are faced with the choice between revising our analysis of knowledge or revising our geometry. I think the only sane reaction to this predicament is to revise the epistemology and save the geometry. (1990: 316-7)

As we will now see Berkeley did in fact revise his epistemological commitments and this brought his conception of knowledge more in line with Euclidian geometry.

This move away from the geometrical theory of minimum sensible can be seen in the NTV. In the last section of that work in the first two editions (both from 1709) Berkeley still proposes a revolution in geometry. The section consists of two sentences and only the first is retained in the third edition from 1732. In the first sentence Berkeley states that the object of geometry is neither abstract nor visible extension. Believing so has confused the science of geometry. As we will see in the next section Berkeley believes that geometry is a science concerned with tactile objects. In the second sentence Berkeley proclaims an overhaul of traditional geometry.

Sure I am, that somewhat relating thereto has occurred to my thoughts, which, tho' after the most anxious and repeated examination I am forced to think is true, doth, nevertheless, seem so far out of the common road of geometry, that I know not, whether it may not be thought presumption, if I should make it publick in an age, wherein that science hath received such mighty improvements by new methods: great part whereof, as well as of the ancient discoveries, may perhaps lose their

⁶ Another possible objection would be that if we accept this view of geometry it becomes useless. It does not appear that it could be a science. There are no general laws that can be applied to a range of objects, but we must discover the spatial relations anew for each object. For this reason it is hard to see how this science could be applied to practical projects.

reputation, and much of the ardour, with which men study the abstruse and fine geometry be abated, if what to me, and those few to whom I have imparted it, seems evidently true, should really prove to be so. (NTV, §160)

The omission of this sentence in the later edition suggests that at 1709 Berkeley still thought that the geometry of the minimum sensible still, after “the most anxious and repeated examination” is true, but that by 1732 he had abandoned it. This rejection of the geometry of the minimum sensible did not happen suddenly and at such a late date. Berkeley seems already in the *Commentaries* and certainly in the NTV to have started sketching a new approach to geometry. This is clearest in NTV §124.⁷ Here Berkeley claims that “it were no hard matter, did I think it necessary to my present purpose, to shew that propositions and demonstrations in geometry might be universal, though they who make them never think of abstract general ideas of triangles or circles.” (§124) So Berkeley now thinks that geometrical demonstrations can be universal even if the object of geometry is not abstract ideas. This indicates that he is willing to concede that geometry is not a straightforwardly empirical science after all, since it contains universal demonstrations, i.e., truths that go beyond what we can know by merely measuring a particular figure. This new conception of geometry that takes universal geometrical demonstrations to be something that has to be accounted for on his theory of knowledge then goes against Berkeley’s assertion in the *Commentaries* that “[s]ense rather than reason and demonstration ought to be employe’d about lines and figures”. But what is the object of the science of geometry if it is not abstract ideas or minimum sensibles, and how does it secure the universality of its demonstrations? This is explained in the introduction of the *Principles*, Berkeley’s fullest statement on abstract ideas.

B) Berkeley’s later conception of abstract ideas and the nature of geometry

In the *Commentaries* Berkeley understood Euclidian geometry to be concerned with abstract ideas. By abstract ideas he means general and non-empirical objects of thought. His favourite example of such a thing is the Euclidian concept of a line as ‘breadthless length’.⁸ This is supposed to be what is left over if we abstract away breadth, depth, colour and any particular

⁷ This section is part of a group of sections (§122-5) that are regarded as late insertions that seem not to have been part of the original plan for the NTV (See Luce, 1963:104-6).

⁸ “A line is breadthless length” (Euclid, *Elements*, I, Definition 2)

quantity from a line drawn on a piece of paper or merely imagined. According to Berkeley, however, it is impossible that we have such ideas. He reformulates this rejection time and again in the *Commentaries*. Here are three examples.

We can no more have an idea of length without breadth or visibility than of a General figure.” (§483)

Extension without breadth i.e. invisible, intangible length is not conceivable this a mistake we are led into by the Doctrine of Abstraction. (§365a)

A mere line or distance is not made up of points, does not exist, cannot be imagine'd or have an idea fram'd thereof no more than mere colour without extension. (§153)

In the three quoted passages Berkeley states that we cannot “have an idea” of breadthless length, that it is not “conceivable” and that it “does not exist, cannot be imagine'd or have an idea fram'd thereof”. The sense in which we cannot have an idea of these things is that it is impossible to have a mental picture, i.e., to frame an idea or imagine a thing that has length but no breadth, a figure that does not have any particular shape, or a colour that does not also have some shape.

At the time of the *Commentaries* Berkeley further took it as an axiom that every significant word stands for an idea.

Axiom. No reasoning about things whereof we have no idea. (§354)

Axiom. No word to be used without an idea. (§356)⁹

The basic problem with the geometrical objects described in Euclidian geometry is on this view that since we cannot have an idea, frame an idea or conceive of them, they cannot therefore be said to exist. This is a rather narrow principle of meaning, where every word or a line of reasoning must refer to a particular idea or set of ideas. Since Berkeley claims to have established that the imagining or framing of an idea of “breadthless length” is impossible then it follows by this principle that the Euclidian concept of a line on which so much of Euclidian geometry depends, is senseless and cannot exist.

⁹ See also *Commentaries* (§378)

In the *Principles*, however, Berkeley rejects this axiom and this ease in restriction allows him to move away from the extreme view on geometry he previously maintained. In other words, by the time of the *Principles*, Berkeley found that he had to revise his epistemology to accommodate for a more conventional conception of geometry. In §18-20 of the *Introduction* Berkeley considers the source of the mistaken view that there are abstract general ideas, such as the idea of breadthless length or a triangle in general. The cause of the prevailing view that there are abstract general ideas is due to a misuse of language. In fact, the basic mistake is one that Berkeley himself commits repeatedly in the *Commentaries*, namely the mistake to think that every noun stands for a particular idea, or has only one particular signification (*Principles*, Introduction, §18). In this way words that stand for general things, e.g., a ‘triangle’, are thought to signify one idea. But Berkeley now thinks that such words do not stand for a determinate idea, but for a range of possible particular ideas. These general words are definitions, for example, the term ‘triangle’ means a “*plane surface comprehended by three right lines*” (*Principles*, Introduction, §18). In such a definition we are not told, for example, what proportions the lines have in relation to each other; and so it is clear that the word does not signify one determined figure and therefore cannot be perceived. If every noun stands for an idea, as Berkeley thought in the *Commentaries*, then words such as ‘triangle’ have no signification. But this is clearly not his view now. He says “[t]is one thing for to keep a name constantly to the same definition, and another to make it stand everywhere for the same idea: the one is necessary, the other useless and impracticable.” (*Principles*, Introduction, §18) It is this discovery about the workings of language that allows him to avoid both his previous theory of geometry and the theory of abstract ideas. In opposition to the view of the *Commentaries*, where he promoted a non-Euclidian form of geometry of sensible things; and unlike the proponent of particular abstract ideas in geometry, Berkeley now thinks that geometrical objects are not things in the same way that sensible objects are things, they are rather something general.

Berkeley then accepts that in a sense there are general ideas. “I do not deny absolutely there are general ideas, but only that there are any *abstract general ideas*” (*Principles*, Introduction, §12). The challenge for Berkeley then becomes to account for the generality of geometrical objects without taking them to be abstract. This new conception of geometry is presented in §15-16 of the *Introduction*. In §15 Berkeley distinguishes between two accounts of the nature of universal notions. The first account is the already discussed notion of an abstract idea. This is the idea of an “absolute, positive nature or conception” which leads to the absurd view that “I could frame an idea of a triangle which was neither equilateral not

scalenum nor equicrural”. Berkeley is here referring to three different kinds of triangles that are possible under the classification of a triangle in terms of the relative length of the sides. In an equilateral triangle all three sides have the same length, in an isosceles triangle two sides have the same length and in a scalene triangle all sides have different lengths. Accordingly, the absurdity consists in imagining a triangle where not all, nor some, nor none of the sides have equal lengths.

The second conception of a universal notion is the one that Berkeley now endorses. On this view particular objects in geometrical proofs and theorems such as a particular triangle are taken to “stand for and represent all rectilinear triangles whatsoever, and is in that sense *universal*.” (*Principles*, Introduction, §15) On this view a general idea or word, e.g., ‘triangle’ is taken to be a sign for all particular triangles that may possibly exist. In a demonstration, such as that of showing that any triangle has internal angles equalling two right angles, the figure used in the demonstration is a particular, e.g., a particular equilateral triangle. But this particular, by conforming to the general definition of a triangle, can stand for, represent or signify all other possible objects that conform to this definition and it can do so regardless of the length’s of the sides of the figure, or the actual size of the angles.

In §16 Berkeley considers the problem of how we can use a particular triangle as a model for a demonstration about something that is supposed to hold true of all triangles. If we do not retain the strong notion of an abstract, general, universal object of thought, then how can the demonstration be universal and attain certainty? Berkeley poses the problem in the following way.

But here it will be demanded, how we can know any proposition to be true of all particular triangles, except we have first seen it demonstrated of the abstract idea of a triangle which equally agrees to all? For because a property may be demonstrated to agree to some one particular triangle, it will not thence follow that it equally belongs to any other triangle, which in all respects is not the same with it. For example, having demonstrated that the three angles of an isosceles rectangular triangle are equal to two right ones, I cannot therefore conclude this affection agrees to all other triangles which have neither a right angle, nor two equal sides. It seems therefore that, to be certain this proposition is universally true, we must either make a particular demonstration for every particular triangle, which is impossible, or once and for all demonstrate it of the *abstract idea of a triangle*, in which all the particulars do indifferently partake, and by which they are all equally represented. (*Principles*, Introduction, §16)

The options seem to either be to accept the abstractionist view or to take up an extreme empiricist position. But Berkeley thinks none of these alternatives are satisfactory. As we have seen Berkeley took the theory of abstract ideas to be incoherent. With regard to the empiricist view, i.e., actually examining every particular triangle to see if its three angles are equal to two right angles, this he plainly thinks is impossible. Presumably because there is an indefinite number of possible triangles so the principles could never reach the universality that it lays claim to. He therefore proposes a third alternative. This is of course to invoke the other sense of general idea that he already spelled out in §12 and §15.

[T]hough the idea I have in view whilst I make the demonstration, be, for instance, that of an isosceles rectangular triangle,¹⁰ whose sides are of a determinate length, I may nevertheless be certain it extends to all other rectilinear triangles, of what sort or bigness soever. And that, because neither the right angle, nor the equality, nor determinate length of the sides, are at all concerned in the demonstration. It is true, the diagram I have in view includes all these particulars, but then there is not the least mention made of them in the proof of the proposition. It is not said, the three angles are equal to two right ones, because one of them is a right angle, or because the sides comprehending it are of the same length. Which sufficiently shews that the right angle might have been oblique, and the sides unequal, and for all that the demonstration would have held good. And for this reason it is, that I conclude that to be true of any obliquangular or scalenon, which I have demonstrated of a particular right-angled, equicrural triangle; and not because I demonstrated the proposition of the abstract idea of a triangle. And here it must be acknowledge that a man may consider a figure merely as triangular, without attending to the particular qualities of the angles, or relations of the sides. (*Principles*, Introduction, §16)

This account, which Jesseph calls the theory of “representative generalisation” (1993: 34), explains how one particular figure can be used to demonstrate the properties of all particular figures that fall under the same definition. In Berkeley’s example we demonstrate that all triangles have interior angles equal to the sum of two right angles. For this we construct a figure that must consist of three line segments and enclose a space, though the length of its sides can be arbitrarily chosen. That the proof that in any triangle, the three interior angles are equal to two right angles is independent of the relative lengths of the sides of the triangles can be seen in the proof for this demonstration put forward in Euclid, *Elements*, I, Proposition 32.

¹⁰ ‘Rectangular triangle’ is an old term for what is now called a ‘right triangle’ or a ‘right-angled rectangle’, i.e., a triangle that has a 90 degree (right) internal angle

Because the proof only appeals to characteristics shared by all triangles, what we proved of our arbitrarily chosen triangle holds good for all triangles.

From this treatment of the method and object of geometrical demonstration it is clear that Berkeley has moved away from his radical empiricist conception of geometry. In the *Principles* Berkeley clearly affirms that geometrical proofs are capable of generalisation whereas in the *Commentaries* he thought that actual measurement of every particular was required in order to; for example, determine the ratio of the diameter to the circumference of a circle. From this it follows that the object of geometry is not a particular empirical object, for example, a particular triangle drawn on a piece of paper. Instead, the object of geometry is the rule for generating a figure, to which a set of particular objects (e.g., triangles) conforms in that they share the specific characteristics of which the definition is composed. For Berkeley, the object of a geometrical demonstration is not “the diagram I have in view”, or what Kant calls the “image”. Nor is the object of geometry the mere concept of a figure. For Berkeley claims that geometrical knowledge, such as that the internal angles of a triangle is equal to two right angles, requires the construction of the concept. The “general idea” is rather the rule for the construction, the rule for constructing any figure corresponding to the concept. In other words, the “general idea” is what Kant calls the “schema” of the triangle. This, I believe, shows that Berkeley’s conception of geometry is not empiricist and not in any obvious way incompatible with Kant’s view.¹¹

Berkeley’s considered view on geometry is to reject the extreme empiricist conception of the minimum sensible as the object of geometry. Further, by accommodating for general ideas in the manner just outlined it is clear that his rejection of abstract ideas does not force him into holding that geometry is conversant about particular sensible things. In fact, as we saw in §16 he explicitly rejects such a conclusion. The objects of geometry are instead general ideas or schemata and so universally valid.

¹¹ For the opposite view see Guyer’s and Wood’s endnote 52 to Kant’s sentence at A140/B181 that reads “In fact it is not images of objects but schemata that ground our pure sensible concepts.” About this they say that the distinction between a mere image and a rule in that paragraph is made “in order to undermine any empiricist criticism of abstract mathematical ideas such as Berkeley’s (see *A Treatise concerning the Principles of Human Knowledge*, introduction, §18)” (Kant, 1998: 728) According to my view Berkeley’s criticism of abstract ideas is his distinction between an image and a schema.

2) Berkeley on the nature of space

In Chapter 3 I examined Berkeley's treatment of space in the *Principles* and *De Motu*. What I found there were criticisms of Newtonian absolute space. The conclusion of these largely negative arguments is that space is not a thing that exists in itself independently of minds perceiving it. Kant's criticism of Berkeley in the epistemological argument concerns how the representation of space and consequently the spatial properties of objects are known. If Berkeley has established that space has an essential relation to and dependence on the perceiver in the *Principles* and *De Motu* then the question that needs to be answered in order to assess the epistemological argument is: how do minds represent things as in space? This is not addressed in either of these two works. We must instead look at the NTV. In this work Berkeley develops a theory of the nature of geometrical objects and how we come to know them. On the basis of this theory I will give an account of the theory of space that can account for this theory of geometry.

A) *Space and vision*

The fullest statement of Berkeley's understanding of the nature of space and the manner in which we experience it is found in the NTV. However, it is primarily a work on the psychology of vision and not directly on space or geometry. I will show, however, that the answer to the question just posed is found here. In order to do so it is essential to understand what Berkeley says about the nature of vision and the methods and particular argument he employs to establish his main thesis.

In the first section of the NTV Berkeley explains what he aims to do in the work.

My design is to shew the manner wherein we perceive by sight the distance, magnitude, and situation of objects. Also to consider the difference betwixt the ideas of sight and touch, and whether there be any idea common to both senses. (NTV, §1)

The two sentences coheres with the two parts that the work can be said to be divided into. According to the first sentence, then, Berkeley is going to explain how we see the spatial properties of objects, i.e., the distance, magnitude and situation of objects. In the second sentence Berkeley further states that he will also compare visual and tactile ideas to see how

they differ and also inquire into the question of whether there are any ideas that are both tactile and visual.

In §2-120 he deals with the issues mentioned in the first sentence. In particular, Berkeley explains how we see distance in §2-51, size in §52-86, situation in §88-120 and finally he treats the issue of whether there are any ideas shared by sight and touch (such as extension and motion) in the remainder of the work, i.e., §121-59. In this sub-section I will consider his answer to the issue raised in the first sentence and in the following sub-section I will address the issue of the second sentence.

The three kinds of spatial properties are dealt with in analogous ways. In each case Berkeley puts forward his own theory of how the spatial property in question is seen, how his view differs from the view he is arguing against and then he gives a visual phenomenon that his theory can solve but that is insolvable on the view he opposes. Since the position he argues against is the same in all three sections, it is useful to begin by considering what this position is.

In the first edition of the NTV the first section also has a third sentence that reads “In treating all which, it seems to me, the writers of optics have proceeded in wrong principles.” Though Berkeley was justified in removing this sentence in a paragraph that sets out the structure of the work it is also true that he does argue against “the writers of optics” explanation of how we see the spatial properties of objects and then in the final part of the work he examines what he takes to be the common fundamental philosophical prejudice of all these writers.

Berkeley criticises a great number of philosophers and mathematicians in the NTV.¹² In the *Appendix* to the NTV that is only to be found in the second edition Berkeley explains exactly what the view is that he is opposing throughout the work.

In the first place it's objected that in the beginning of the essay I argue either against all use of lines and angles in optics, and then what I say is false; or against those writers only who will have it that we can perceive by sense the optic axes, angles, etc., and then it's insignificant, this being an absurdity which no one ever held. To which I answer that I argue only against those who are of

¹² As Atherton has pointed out “all these references deal with specific problems or illusions except those which cite Descartes.” (1990: 16-7n1) My interpretation of the first part of the NTV is in general agreement with Atherton's excellent commentary on that work. My disagreement lies primarily in the understanding of the conclusions Berkeley draws from these findings with regard to the nature of space and will be explained in sub-section C.

opinion that we perceive the distance of objects by lines and angles or, as they term it, by a kind of innate geometry. (NTV, Appendix)

What Berkeley opposes is the mixing of geometrical optics, i.e., an account of the motion of light rays or particles by means of lines and angles etc. (which have many legitimate uses) with an account of how we see, which belongs to philosophy (TVV, §43).¹³ On the geometrical theory, then, the spatial determinations of objects, their distance, size and situation are established by geometrical reasoning based on the lines and angles by which the situation between our eyes and the object seen can be represented. Both his respective criticisms of the geometrical theory and the spelling out of his own rival account are based on establishing the nature of what is immediately perceived by sight and what is inferred from this sensation, as will now be shown.

Berkeley attacks particular accounts of this general theory throughout the first part of the NTV and they will be assessed as they are encountered here. Berkeley begins his account of how we see distance by stating that we do not see it immediately and that this is an uncontroversial claim (NTV, §2). The distance between my eye and an object is a straight line between these two things. But since this line is “projected end-wise to the eye, it projects only one point in the fund of the eye, which point remains invariably the same, whether the distance be longer or shorter” (NTV, §2). So this line is actually visually represented to us as a point, which has no length at all. So the question is then how we infer the distance of objects based on what we see. With regard to things that are far away Berkeley takes it to be uncontroversial (and therefore also an explanation used by proponents of the geometrical theory) that we see the distance of an object by means of certain visible cues that we have experienced as going together with various distances. For example, we use other objects in our field of vision that we have experienced of being at a certain distance and of a certain magnitude (“such as houses, fields, rivers, and the like” NTV, §3) as a help to determine the distance of some other object. Another useful cue is the faintness or distinctness and the size of the object. If I have previously experienced the object to be distinct and large and now see it as smaller and less distinct I can safely conclude that it is further away.

¹³ Atherton has argued convincingly (1990: 18-52) that the best representative for the geometric theory of perception is Malebranche rather than Descartes. It is not necessary and beyond the scope of the present thesis to consider the historical targets of Berkeley’s arguments in any detail here.

However, in cases where an object is close to us the geometrical theory (Berkeley here refers to Descartes, NTV §4) holds that we judge objects to be closer or further away (say, 10 or 20 centimetres from our eyes) by judging the largeness of the angle created by drawing lines from the centre of each eye to a point of the object. In this case we do not infer through experience of the distance of the object but by geometrical reasoning.¹⁴ In this way the geometrical theory can establish a necessary connection between the things we see and the distance (a larger angle necessarily means that the object is closer) which was not present in the case of seeing things far away, since the experimental cues such as size are not necessarily connected to larger or smaller distance. For example, not all small things are far away, some things are actually small. The proponent of the geometrical theory is therefore seen by Berkeley to use different kinds of explanations of how we see. They use both inferences from experience when judging of distances far away and geometrical reasoning when judging of distance that are close to the eye.

Berkeley's claim is that we always judge the distance of objects through experience and never by means of an innate geometry. He argues for this in §10 and §13.¹⁵ Berkeley is interested in how we see distance. For example, how I can see that the door to this room is about 3 meters away? I make this judgement based on the visual information I have available. However, I do not perceive the distance immediately. So I must somehow make a judgement based on what I see. Now, I do not see any lines or angles between my eye and the object (if there were such lines I would only see them as points anyway, given NTV, §2), so lines and angles are not the means by which I see the distance. Therefore the answer to how we see distance given by the geometrical theory cannot be correct. It is certainly true that we can compute the distance between things and that we do in fact do so when, for example, we design a house or a bridge or read a map. But Berkeley is concerned with, and believes that the geometrical theory also wants to account for, how we see distance, as in how far the door is from me now given my visual experience and this is something that the geometrical theory cannot account for since lines and angles do not form part of my visual experience.

¹⁴ This kind of explanation does not work for things that are far away since the difference in the largeness of the angle relative to the distance of the object decreases the further away the object is so that it would be implausible if we could register the difference in the largeness of the angle of an object that is one kilometre from an object that is two kilometres by this innate geometry.

¹⁵ Berkeley gives a second argument for this in §29-40 of the NTV. Berkeley there brings up a puzzle for the geometrical theory, the so-called 'Barrow illusion' which is taken to be unsolvable in terms of optical geometry but can be easily explained on Berkeley's account of seeing distance.

Berkeley's answer to how we see the distance of things that are relatively close to us is that we do so by means of an inference based on experiential cues that belong to the act of looking at the object. Berkeley gives two examples of such cues. Firstly, if I hold a pen half a meter in front of my eyes and move it slowly towards me while looking directly at the pen the pupil of my eyes will move closer together. The relative position of my pupils is accompanied by the sensation of a strain to my eyes. It is by the degree of this sensation of strain that I can tell the distance of the object when it is relatively near to me. As Berkeley puts it,

I know [...] that the sensation arising from the turn of the eyes is of itself immediately perceived and that various degrees thereof are connected with different distances, which never fail to accompany them into my mind, when I view an object distinctly with both eyes, whose distance is so small that in respect of the interval between the eyes has any considerable magnitude." (NTV, §18)

Secondly, when moving the pen in the way described it will also look more and more confused or blurred and so from this confusion we also infer distance (NTV, §21).

Berkeley continues by explaining what consequences concerning the nature of vision and space can be drawn from this discussion of distance. His main conclusion is that immediate objects of vision and immediate objects of touch are of different kinds or "heterogeneous" (NTV, §137) and that the only things to which spatial denominations apply are, strictly speaking, tactile. What I immediately see is not at a distance from me, but it suggests another object which is properly an object of touch that is at a distance from me and that can get closer or further away from me.

This could seem like a quite strange conclusion to reach and Berkeley is adamant to show that it is not. He illustrates his point with the following example, where he claims that common speech confirms that objects at a distance are tactile objects, not objects of vision. When I say that the moon is at a distance of fifty or sixty semidiameters of the earth distant from me I am not talking about the thing that I see when standing on earth. For the moon I see is a small round thing. This small round thing is not at that distance from me because if I travelled to the moon I would not find a small round thing but something very large and with a different shape. It is this thing that I could land on and walk around that is at the distance from earth I just travelled. So I do not actually see things at a distance, I see small, faint representations of things at a distance. Berkeley concludes,

This I am persuaded of, as to what concerns myself: and I believe whoever will look narrowly into his own thoughts and examine what he means by saying he sees this or that thing by distance, will agree with me that what he sees only suggests to his understanding that after having passed a certain distance, to be measured by the motion of his body, which is perceived by touch, he shall come to perceive such and such tangible ideas which have been usually connected with such and such visible ideas. [...] From what we have shewn it is a manifest consequence that the ideas of space, outness, and things placed at a distance are not, strictly speaking the object of sight; they are not otherwise perceived by the eye than by the ear. (NTV, §45-6)

If the immediate objects of sight are not at a distance from me, then what about the other spatial properties of objects? Can I see the size and situation of things immediately by sight? Berkeley aims to show that we cannot actually see any spatial property immediately by sight and that all spatial properties of objects are ultimately tactile things.

The next spatial property that Berkeley examines is size. As with distance the size of an object is not immediately seen by vision either on the geometrical theory or on Berkeley's view. The reason for this is quite straight forward. Some things can take up a large part of the visual field but still be small and a large thing can take up a small part of the visual field. By means of what do we then know if a thing that takes up a certain portion of the visual field is large or small? According to the geometrical theory we do so by combining the size of the object in my field of vision or on the retina with the distance of the object. For example, a one meter tall person seen at ten meters distance is seen as smaller than a three meter tall person at thirty meters distance because our visual system factors in the distance with the size of the immediate object of sight (NTV, §60).

Berkeley explains that the problem with this view is that since we know distance by means of certain experiential cues (as he claims to have established in his discussion on distance), and these cues are equally cues for size and distance, it is incorrect to claim that we first establish the distance of the thing and then its size. The reasoning that leads us to determining the distance of an object is the same reasoning that allows us to determine the size of it. The cues for distance are the visual cues of visual size, distinctness and faintness. If something takes up a lot of our visual field and is blurred, then we take it to be small and if something takes up a small portion of the visual field but is faint, then we take it to be large. In the first case we also expect it to be close to us, for example a book that I hold up close to my eyes and in the second case we also take the object to be far away, for example a building

that I see in the distance. So there is no priority of distance over size in these cues, they work equally for both.

Again, as with distance, the size we are referring to when we judge an object to have a certain magnitude is not the visual size but the tactile size. The visual size varies with the distance whereas the tactile size of an object remains the same and is the referent of visual size. "Whenever, therefore, we speak of the magnitude of anything, for instance a tree or a house, we must mean the tangible magnitude, otherwise there can be nothing steady and free from ambiguity spoken of." (NTV, §55) So according to Berkeley visible size is not necessarily connected to the real magnitude of the object, i.e., its tactile size. This sets his view apart from the geometrical theory where there is a geometrical relation between the thing we see and the thing we touch. On Berkeley's view, however, the relation between the two is known through experience. In Atherton's words "In both cases [seeing distance and size], a problem that arises because we seem to be able to learn more through seeing than we are equipped to learn by our visual system is solved by showing that the initial visual data are not supplemented by calculations relating the retinal stimulus to other extended objects but are instead supplemented by cues that suggest data from another sensory modality, that of touch." (1990: 122)

Finally Berkeley turns to situation. By situation he means the relations between the position of objects or part of objects relative to each other, e.g., how we see a person's feet as closer to the earth than the head when the person is standing up or how we see something as being to the left or right of something else. His discussion centres on the problem of the inverted retinal image. Berkeley presents the problem in the following way,

There is at this day no one ignorant that the pictures of external objects are painted on the *retina*, or fund of the eye: that we can see nothing which is not so painted: and that, according as the picture is more distinct or confused, so also is the perception we have of the object: but then in this explication of vision there occurs one mighty difficulty. The objects are painted in an inverted order on the bottom of the eye: the upper part of any object being painted on the lower part of the eye: and so also as to right and left. Since therefore the pictures are thus inverted, it is demanded how it comes to pass that we see the objects erect and in their natural posture. (NTV, §88)

The problem is then that given that the light that reaches our eye will touch the retina in a way that is inverted compared to the situation of the light rays as they leave the object, why is it that we do not see the world as being upside down?

On the geometrical theory the answer is that based on the upside down retinal image we trace back the rays of light from the angle they hit the retina to the object itself and so what we actually see is a picture that is the result of a geometrical calculation based on the retinal image (NTV §89). Berkeley's objection to this view is, as always with the geometrical theory, that we are not conscious of any part of this geometrical reasoning process and that we do not see any light rays or the angles in which they enter the eye. Berkeley's account of how we see situation and the problem of seeing situation is different from the geometrical theory. Since he has already argued at length that we see only light and colour immediately and the situation of object is not understood in terms solely of variations in these sensations it follows that situation cannot be an immediate object of sight. The immediate objects of sight is not at any determinate distance or have any determinate size, so neither do they have parts that are lower down or higher up or left or right to each other. Rather, situation, like all spatial properties of objects, is in the first instance tactile ideas. So what Berkeley needs to explain is how we can see situation, given that situation is primarily tactile and not visual.

Again Berkeley's answer is that we learn through experience to correlate tactile sensation with visual. Berkeley's explanation for how we do this is that by moving our head or eyes we learn to correlate the visual changes with change of direction and location of our body and by the force of gravity. It is by means of these latter concepts that Berkeley thinks a blind person would arrive at the notion of situation (NTV, §93). Berkeley speaks specifically about the directional polarities of up and down since this is what is at issue with the problem of the inverted retinal image.

By the motion of his [a blind person's] hand he might discern the situation of any tangible object placed within his reach. That part on which he felt himself supported, or towards which he perceived his body to gravitate, he would term lower, and the contrary to his upper; and accordingly denominate whatsoever object he touched. (NTV, §93)

Since Berkeley has already argued that visual sensation itself is not sensation of something outside us without being correlated to tactile sensation it follows, he believes, that if made to see this person would have to learn how to connect visual sensation with situational concepts. By moving his eyes or body downwards what he sees will change and this he will learn to

understand as being visual sensation of something that is also further down than before. So situation is also seen mediately by referring visual sensation to tactile, in particular to bodily movement. The cues by means of which this inference is made are not visual sensation, however, as in the case with some distance and size cues (e.g., faintness and distinctness). Instead the cues are themselves tactile sensations such as the movement of the body in different directions or the movement of parts of the body, such as the hands and the eyes (NTV, §98).

From this discussion of the nature of the visual and tactile with regards to the spatial properties of object we can draw two related significant conclusions. Firstly, according to Berkeley, things outside us are tactile things, not visual. What we see is not itself something outside us but can only be thought to be so by referring it to what is tactile through inferences based on experiential cues. Secondly, for Berkeley's the experience of things as outer is the result of a combination of diverse and entirely heterogeneous elements. For outer objects to be seen it is required that we combine and separate sensations into collections of ideas, in Berkeley's terms "distribute into sundry distinct combinations" (NTV, §110, see also NTV, §109).

B) Tactile imagination and the foundational role of motion of the subject

In Section 1B I showed that Berkeley's account of the object of geometrical knowledge is equivalent to Kant's conception of a schema of a pure shape in space. But this apparent similarity does not count for much. In particular it does not show that for Berkeley the senses intuit *a priori*, if it cannot also be shown that the subject constructs objects corresponding to the schema through a transcendental synthesis of the imagination. If the act of the subject in geometrical construction is not constitutive for outer experience then though geometry might be an *a priori* science that does not show that outer experience includes *a priori* elements that make our knowledge of geometry true to experience. The task of this sub-section and the next is to establish that this connection is present on Berkeley's view.

One obstacle for believing that Berkeley has a theory like Kant's conception of a synthesis underlying all outer experience is that it might be thought that for Berkeley outer experience is merely a case of having sensation imprinted on the mind. This is not the case and I will illustrate this by the following example. Consider the case of seeing an object, for example an orange cup, about two meters away. On Berkeley's view this object is not received as such in sensation. It is rather the result of a synthesis of the mind that is not given,

based on the information given by two senses (sight and vision) that are entirely heterogeneous. When I see an object at a distance, what elements are combined together? Actual visual sensation will be part of the story. But since visual sensation is strictly speaking wholly non-spatial and I am experiencing the thing as having a determinate size and situation and as being at a certain distance from me the mind needs to combine the visual sensation I am having with tactile sensation. We have seen that Berkeley's account of this involves visual cues such as faintness and distinctness and tactile sensations of bodily motion like eye movement and the tactile sensations received from the object itself. However, since the object is out of my reach I am not at presently having tactile sensations of it. This example illustrates the point that the experience of the object at a distance does not require actual tactile sensation of the object.

This gives rise to a puzzling aspect of Berkeley's theory of vision. The elements that we are actually given in sensation, by themselves, are not sufficient for the experience of the object. The visual and tactile sensation that I process into the experience of the object are mere cues with no necessary relation to any particular object of touch. Something is therefore missing from the explanation since the information that I have available in sensation (sensation of colour, light, eye strain and eye and limb movement) is less than the information displayed in my experience (an orange cylinder shaped objects about twenty centimetres tall, about four centimetres in diameter at the base, at about two meters distance away from me).

What is required is 'tactual imagination'.¹⁶ By means of our imagination we can use previous tactile sensation as material to be combined with now present visual and tactile information to form into the experience of an object at a distance. Berkeley expresses this when he says,

having of a long time experienced certain ideas, perceivable by touch, as distance, tangible figure, and solidity, to have been connected with certain ideas of sight, I do upon perceiving these ideas of sight forthwith conclude what tangible ideas are, by the wonted ordinary course of Nature like to follow. (NTV, §45)

¹⁶ I borrow this term from Waxman (2005: 340). As he points out the use of this term is legitimised by Berkeley's formulation in the TVV where he says that "figures and motions, which cannot be actually felt by us, but only imagined, may nevertheless be esteemed tangible ideas, foreasmuch as they are of the same kind with the objects of touch, and as the imagination drew them from that sense." (§51)

So not only do I use information immediately available by sense. I also avail of former instances of moving towards or receding from it or other objects and receiving tactile experience from it or other objects.

Further, as the discussion of the first part of the NTV has shown, the kind of tactile sensation that is essential for experience of the spatial properties of things is the movement of the subject's body. This comes out particularly clearly in Berkeley's discussion on seeing distance and situation. In the discussion of seeing distance Berkeley claims that the activity of moving body is foundational for our understanding of distance.

This I am persuaded of, as to what concerns myself: and I believe whoever will look narrowly into his own thought and examine what he means by saying he sees this or that thing at a distance, will agree with me that what he sees only suggests to his understanding that after having passed a certain distance, to be measured by the motion of his body, which is perceivable by touch, he shall come to perceive such and such tangible ideas which have been usually connected with such and such visible ideas. (NTV, §45)

With regard to situation Berkeley states that our conception of the directional polarities, up and down, left and right and in front and behind, originates in the relation between our body and the object. By feeling an object with a hand it is possible to tell how the object is situated, what kind of shape it has, how high or low it is, etc. (NTV, §93).

For Berkeley bodily movement and tactile sensation are then necessary conditions for outer experience. To be able to know that things are at a distance from me I must be capable of approaching the object and receding from it. I do not need to do this every time I perceive a thing to be at a distance from me. However, in the cases I do not, I need to be able to employ tactile imagination, which requires that I can imagine moving in this way. In the case of knowing the size and shape of things I must be capable of moving my body or at least parts of it (eyes, head, limbs) left and right, up and down. Again, in cases where I do not actually move in these ways but still perceive the size and situation of the object I rely on tactile imagination which in turn presupposes the capacity to move in these ways.

C) Berkeley on the foundations of spatial experience and the possibility of geometry

According to Berkeley tactile and kinaesthetic ideas explain space perception. Berkeley's stated aim of the second part of the NTV is according to §1 to consider if there are any ideas shared by sight and touch. As we have seen Berkeley has already drawn a sharp distinction

between things seen and things touched in his discussion of how we see distance, size and situation. In the second part Berkeley considers whether there are any ideas whatsoever that are shared by sight and touch. He does so by considering the most fundamental ideas connected to outer experience, extension, figure and motion, which have been thought to be accessible to sight and touch. That such fundamental aspects of experience are available to both senses in question is according to Berkeley held by Locke (NTV, §130). Berkeley quotes the *Essay*, Book II, Chapter IX, §9 where Locke says that sight conveys “the *ideas* of light and colours, which are peculiar to that sense; and also the far different *ideas* of space, figure and motion”. Berkeley’s view is that “*The extension, figures, and motions perceived by sight are specifically distinct from the ideas of touch called by the same names, nor is there any such thing as one idea or kind of idea common to both senses.*” (NTV, §127)

As Berkeley points out in this section, his position can be gathered from the first part of the NTV “without much difficulty” (NTV, §127). Nevertheless, in the second part Berkeley advances a number of new arguments to establish this thesis. His strategy is both to argue that all serious alternatives are demonstrably false and to give an account of the role of tactile ideas that makes his view plausible. He takes there to be two rival theories to his own. The first theory is the more general view that extension, figure and motion perceived by sight is of the same kind as extension, figure and motion perceived by touch (NTV, §121). The second theory is the more specific view that visual and tactile extension have a shared content that can be accessed through an act of abstracting from all sensible qualities (NTV, §122).

Berkeley has a number of arguments against the notion of abstract extension and figure. These arguments are similar to those Berkeley puts forward in the *Introduction* to the *Principles* (see §15, §16 & §18 of the Introduction in particular), which I have already considered in some detail in Section 1B. In brief, Berkeley argues that the notion of extension in the abstract is incomprehensible (NTV, §123) and contradictory (NTV, §125) and that such a conception of the nature of geometrical objects is not required for the universality of geometrical demonstration (NTV, §124). In this way Berkeley thinks that the main contender against his account of spatial knowledge is a conceptual impossibility and also unnecessary.

As we saw in the last sub-section Berkeley has already argued at length that distance, size and situation are neither immediately perceived by vision nor perceived by means of innate geometry, but requires tactile perception and imagination. He now turns to the notions of motion and extension. The case of motion is quite straight forward. As we saw in Section 2A Berkeley argued that the directional polarities that we call up and down, left and right, and behind and in front are tactile concepts related to the capacity to move our own body (NTV,

§93-5). Any tactile motion perceivable or imaginable is directed in one or more of these ways. Therefore, in order to see motion we must already have the concepts of the directional polarities (NTV, §137). We could not be able to see movement if we did not have the experience of our own bodily motion to draw upon. This implies that in order to experience motions it is required that we have a body that allows us to form these directional notions.

With regard to extension being an idea shared by sight and touch Berkeley has a number of arguments against this view. Firstly, he argues that a person born blind and made to see would not think what he saw was of the same kind as what he touched.¹⁷ This, he continues, is not what we would expect if sight and touch had a shared content. For then there should be something familiar and similar in what we touch and see that we should be able to recognise when made to see (NTV, §128). Secondly, Berkeley states that there is no other immediate object of sight besides light and colour. Since these are in no way objects of touch Berkeley takes this to show that the objects of sight and touch are heterogeneous (NTV, §129). Further, the belief that we see more than light and colour can only be justified by appeal to the idea of extension in the abstract (NTV, §130). Finally, Berkeley also states that it is uncontroversial that quantities of the same kind can be added together. But tactile extension and visible extension cannot be added together, therefore they are not of the same kind (NTV, §131).

By taking himself to have established that visual and tactile motion and extension are heterogeneous, Berkeley turns to the issue of geometry. In this discussion he radicalises his theory. Up till now he has been concerned to show merely that visual and tactile extension is of different kinds. In his consideration of geometry he does not in an analogous fashion argue that visual and tactile geometrical figures are heterogeneous. Instead he argues that the objects of geometry bear a merely arbitrary relation to objects of vision and that geometrical objects are essentially tactile.

Berkeley's discussion of the objects of geometry is developed two stages. In §149-52 he argues that geometrical objects are tactile and that the geometrical diagrams we look at are not like the objects that the demonstration is about. In §153-9, which are the last sections of the NTV, Berkeley considers what is required for a subject in order to have geometrical knowledge. In these final sections he therefore puts forward a conception of geometry that is incompatible with the geometric theory of vision. In the first part of the NTV he has been

¹⁷ Berkeley peruses the case of the Molyneux problem further in NTV, §132-135.

content to argue against particular aspects of that theory but here the claim is that since geometry is a science of tactile objects, an appeal to geometry cannot explain how we see.

Berkeley begins his discussion of the nature of geometrical objects with the following words,

I cannot forbear making some inquiry concerning the object of geometry, which the subject we have been upon doth naturally lead one to. We have shewn there is no such idea as that of extension in abstract, and that there are two kinds of sensible extension and figures which are entirely distinct and heterogeneous from each other. Now, it is natural to inquire which of these is the object of geometry. (NTV, §149)

Berkeley begins his inquiry into this question by presenting a line of thought that suggests that geometrical objects are visual. Firstly, vision is used extensively in the examination of diagrams used in demonstrations. Secondly, we might think that in geometry “the very ideas themselves” are “being copied out and exposed to view upon paper.” (NTV, §150) But Berkeley takes himself to have undermined this position in the first part of the NTV, specifically in §59-61, which concerns size. He argued there that visible size is relative to the distance that we are from the object and so that the visual size of an object does not refer to something stable and determinate. Tactile size, however, is constant. So when we say that an object is one meter long we refer to the tactile object, not the visible one, as the latter might appear to be two meters or two centimetres long. In the second part of the NTV Berkeley sums up his findings in his discussion on size by saying that “men measure altogether, by the application of tangible extension to tangible extension. All which makes it evident that visible extension and figures are not the object of geometry.” (NTV, §151)

But at this point a seeming contradiction in Berkeley’s account of the nature of geometrical object appears to arise. We saw in section 1B that by the time of the *Principles* Berkeley thought that geometrical objects are general ideas (though they are not abstract objects). Rather, geometrical objects are rules for constructing figures. However, in the NTV Berkeley is saying that geometrical objects are tactile objects. It seems impossible that the objects of geometry can be both tactile objects, and so *particular*, and at the same time be definitions or rules, which are *general* ideas.

This problem is identical with a puzzle that confronted Kant in his account of geometry.¹⁸ For Kant the problem was that a figure that corresponds to a geometrical concept can be constructed can be drawn on paper (and so be empirical), yet the construction is *a priori* (universally valid). Kant resolved this problem by stating that in the drawing we only pay attention to the act of constructing the figure, we only concern ourselves with “motion, as act of the subject”.

In the first Section of this Chapter we have seen that there might be room for Berkeley to make an analogous move. He can distinguish between the object of geometry being the rule for constructing a figure on the one hand and being that which is involved in the understanding of carrying out these instructions on the other. The former can legitimately be called a general idea whereas the latter aspect of the construction is a set of acts that require the sense of touch and bodily movement and that will inevitably result in a particular and tactile object. I will now show that this is actually the move that Berkeley proposes.

The second step in Berkeley’s consideration of the consequences that his theory of vision has on geometry takes the form of a thought experiment (NTV, §153-9). Here he introduces the idea of a being that he refers to as an “unbodied spirit” or “intelligence”. This is a being that is thought to “have a clear perception of the proper and immediate objects of sight, but to have no sense of touch”. (NTV, §153) The question Berkeley asks with respect to such a being is “what proficiency such a one may be able to make in geometry.” (NTV, §153) The answer is, to put it bluntly: none whatsoever. The way he reaches this conclusion is highly relevant for the present inquiry because I will show that Berkeley takes the translation and rotation of the body to be necessary conditions for geometrical knowledge. Therefore, that Berkeley takes certain capacities of the subject, the capacity for tactile experience and the capacity to move by rotation and translation to allow for an *a priori* structure whereby the synthetic *a priori* propositions of geometry can be known. This explanation of the possibility of geometrical knowledge is an account in terms of how the senses can, in Kant’s words, “intuit *a priori*”, and it refutes Kant’s epistemological argument against Berkeley’s philosophy.

The first thing Berkeley establishes follow straightforwardly from his conclusions that distance is not an object of sight. The ‘unbodied spirit’ could not have full blown conception of three dimensional space or of bodies since it could only have visual sensation and this

¹⁸ See Chapter 4.1B

sensation is not sufficient for forming the idea of distance. With regard to geometry this shows, according to Berkeley, that it is “beyond the reach of his faculties” (NTV, §154) for this being to have any notion of the geometry of solids.

In the next section Berkeley goes further and claims that the unbodied spirit could not have the least notion of plane geometry either. In Berkeley’s words,

Farther, he cannot comprehend the manner wherein geometers describe a right line or circle; the rule and compass with their use being things of which it is impossible he should have any notion: nor is it an easier matter for him to conceive the placing of one plane or angle on another, in order to prove their equality: since that supposeth some idea of distance or external space. All which makes it evident our pure intelligence could never attain to know so much as the first elements of plane geometry. (NTV, §155)

What is it about the unbodied spirit that makes it impossible for it to comprehend “the manner wherein geometers describe a right line or circle”? It is clear that all the problems for the intelligence in question stems from the fact that it has no body. But what about having a body is it that is problematic in this case? Atherton gives a clear statement of this that I take to be mistaken. She says,

Since the spirit could not manipulate a rule or compass, it would lack the concept of right angle and circle, and since it could not carry out operations like imposing one angle on another, it would have no means for recognizing the equality of angles and hence would lack this concept. For Berkeley, geometrical demonstration consists in the manipulation of objects in space, placed one on top of another or making a circle with a compass. The success of geometrical demonstration consists, therefore, in the successful completion of mechanical operations such as interposition.” (1990: 205)

On Atherton’s view it because the being has no hands, or in general any limbs at all, by which to manipulate the instruments in question, i.e., the rule and compass, that the unbodied spirit cannot “attain to know so much as the first elements of plane geometry”. In the terms that I used in Chapter 4.1B, Atherton is saying that the unbodied spirit could not perform a mechanical demonstration. She further says that this is the only way that Berkeley thought it was possible to demonstrate propositions in geometry when she says “The success of geometrical demonstration consists, therefore, in the successful completion of mechanical operations such as interposition.” If this is correct, then this poses a serious problem for a defence of Berkeley against Kant’s epistemological argument. For then we have no reason to

conclude that Berkeley sees the conditions that make geometrical knowledge possible as transcendental condition but as empirical conditions.

However, such an interpretation of this passage is mistaken. I see three problems with this view. Firstly, as we saw in Section 1B, Berkeley had abandoned his extreme empiricist program for geometry by the time of the *Principles* and understood geometrical demonstrations to yield universal propositions about objects that are in a sense general. Therefore, if Atherton is correct then Berkeley has a very peculiar, not to say flatly contradictory, conception of geometrical demonstration. One where we arrive at universal propositions through inspection of the mechanically constructed diagrams. This appears incomprehensible because the knowledge we get through measuring figures is inductive and cannot produce universal geometrical knowledge. Berkeley himself admits this when he says “because a property may be demonstrated to agree to some one particular triangle, it will not thence follow that it equally belongs to any other triangle” (*Principles*, Introduction, §16)

Secondly, Atherton’s interpretation appears to go against Berkeley’s description of the *procedure* for geometrical proofs in the *Principles*. There he stated, as we have seen in Section 1B, that geometrical proofs abstract from the particular lengths of the sides and size of the angles of the figures in geometrical diagrams. But these features of the figures must be taken into consideration in a mechanical demonstration.

Thirdly, if Berkeley really held the conception of geometry that Atherton attributes to him, then it is highly unlikely that he would expect his readers to accept conclusions based on such an extravagant and unargued thesis. To get a flavour of how geometrical demonstrations were understood in Berkeley’s time I will consider the writings of Isaac Barrow. Berkeley mentions Barrow’s statements on geometry no less than 10 times in his notebooks. Usually they are disparaging remarks and he is there presented as a representative of the traditional Euclidian geometry. As Berkeley later came to reject his revolutionary conception of geometry in favour of a more traditional one, we could think that Berkeley, like most other people, came to take Barrow’s teachings in geometry quite seriously.

It is Barrow’s view that we do not arrive at geometrical principles through sense but through reason. Though we use diagrams for our geometrical demonstrations we do not get our information from the figure as sensed but use it as an occasion for an act of abstraction by reason.¹⁹ As an example he takes Euclid’s first Postulate.

¹⁹ Berkeley would of course object to the kind of abstraction Barrow takes to be involved in a geometrical proof. It is Barrow’s opinion that the act of abstraction results in a particular and that specimens of geometrical figures

[W]e know that a Right Line can be drawn between two assigned points; because we perceive by the Sense, how a Progress may be made from one Point to another, wherein if there be any Unevenness or Deflection, it can be so far rectified by the Hand as to make a Line *sensibly Right*; from whence we infer by our Reason, there being no Repugnance on the Part of the Thing, that all other Roughness and Exorbitances may be paired off and corrected, and so the Line becomes *perfectly Right*. (Barrow, 1970: 75)

In this way a mechanical construction of a sensible line can be made ‘sensibly right’ by, e.g., using a good ruler. But for the line to be ‘perfectly right’ we require an act of abstraction. This being the received opinion at the time there is no reason why Berkeley would expect his readers to accept that geometrical demonstration depends on “the successful completion of mechanical operations such as interposition.”

Instead of mechanical operations necessarily involving manipulation of instruments. Barrow emphasises that the construction of geometrical figures depends on our understanding the performance of certain motions. He claims that geometrical objects are best defined in terms of their “generative motion” (Shabel, 2003: 61) He gives a number of examples of such motions, e.g., “when a Circle is described from carrying about of a Right Line of whose Extremes is fixed” and “a *Right Line* is made from the shortest direct Motion of a Point” (Barrow, 1970: 61).²⁰ The suitability of these definitions stem from the realisation that such motions can be performed and that the figures must necessarily be produced if these motions are performed. In Barrow’s words “[n]ow no Body, who will but attend a little can deny, or in the least doubt, but such Motions may be performed; and that such Effects must necessarily result from them.” (Barrow, 1970: 61-2)

Given this understanding of the generation of geometrical objects a more plausible reading of NTV, §153 is that when Berkeley says that “the rule and compass with their use being things of which it is impossible he should have any notion” he does not say that the unbodied spirit cannot perform certain mechanical operations. It is of course true that he cannot perform these operations, but that is not what is essential for understanding the basic

could exist in nature. “So if the Hand of an Angel (at least the Power of God) should think fit to polish any Particle of Matter without Vacuity, a Spherical Superfice would appear to the Eyes of a Figure exactly round; not as created anew, but as unveiled and laid open from the Disguises and covers of its circumjacent Matter.” (Barrow, 1970: 77)

²⁰ See also Barrow, 1916: 42.

elements of plane geometry. Rather, it is because the unbodied spirit has no concept of motion, as Berkeley has just argued in NTV, §137, that he cannot have any notion of the generation of even a line or a circle. This is why he cannot have even a rudimentary knowledge of plane geometry.

From Berkeley's discussion of the preconditions for outer experience and geometrical knowledge in the NTV two conclusions can be drawn that allows Berkeley's conception of space to be compared with Kant's understanding of space as a pure intuition. Firstly, Berkeley has argued that a being without the sense of touch and motion cannot have any sense of outness because the idea of space requires the capacity to (a) move towards or away from things in space and the capacity to (b) be affected by things in space through the sense of touch. Secondly, Berkeley has also argued that a being without touch and without motion can have no knowledge of geometry. This is because such knowledge, e.g., of being aware of what a geometrical figure such as a line or a circle is (to have the schema of the figure), requires the comprehension of the fundamental constructive procedures of the first three Euclidian postulates, which in turn requires an understanding of the motion that describe the generation of the figures (translation and rotation).

For Berkeley a certain structure must therefore be in place which makes both outer experience and geometrical knowledge possible. This is a set of conditions that includes the capacity to move one's body and the capacity to be affected by objects in space through tactile sensation. It is a structure that explains how we can have experience that itself does not depend on any sensation and so the conditions for outer experience and geometrical knowledge is for Berkeley *a priori*. In other words, for Berkeley as for Kant, the senses intuit *a priori*.

Concluding remarks:

My conclusion is accordingly that, contrary to Kant's vehement denial, there is a deep affinity in Kant' and Berkeley's explanation of the relation between our experience of things as in space and the capacities and constitution of the subject for which this experience is possible. Further, that their respective accounts of the concept of space are based on this explanation. To this extent they share what could be called a 'subjectivist' view of the representation of space.

But their explanation of this relation is an identification of the subjects' capacities for outer experience with the fundamental requirement of geometrical construction, namely translational and rotational movement of the human body. In this way the 'subjectivism' does not appeal to mystical or spiritual capacities such as innate geometry or to disembodied beings. Instead, certain elements of embodiment are identified as transcendental and used in order to explain both the possibility of our representation of space and our knowledge of geometry.

Discovering this affinity in Kant's and Berkeley's view of space has benefits. The fact that they emphasise different aspects in their respective theories actually allows us to complement and clarify certain issues that remain unclear in crucial parts of their philosophy. I will here mention the two clearest and most important cases where I have argued that the thoroughly worked out thesis of one of the thinkers clarifies what is vaguely expressed by the other.

On the one hand, Berkeley's discussion on the possibility of geometrical construction in the end of the NTV shows how to understand Kant's all too brief statements about the role of subjective motion in grounding geometrical knowledge and the representation of space that he sketches in a series of footnotes in the *B-Deduction*. The subject must have certain capacities that are associated with embodiment in order to have geometrical knowledge and outer experience, as the 'unbodied spirit' thought experiment shows. On the other hand, Kant's conception of construction in pure intuition points the way for understanding Berkeley's seemingly ambivalent account of geometry as an *a priori* science of tactile object. The ambiguity in Berkeley's account disappears if we understand it as an expression of Kant's account of geometrical construction. Kant makes the distinction between an 'image', 'concept' and 'schema' of a figure. What we attend to in diagrams is not really the image but the schema, i.e., the rule for carrying out the construction in accordance with the concept.

This corresponds to Berkeley's 'general idea'. Further, the content of the instructions are such that they have meaning in terms of the transcendental synthesis of the imagination, which is an act, as motion of the subject. Given what Berkeley has taught us of the nature of the subject with regards to geometrical construction we can then understand that because the subject is a moving, embodied subject, the content of the instructions must be tactile and kinematic instructions. In this way the objects are both independent of any particular figure or sensible idea. It is not an image but an *a priori* representation. This *a priori* representation requires the capacity of tactile experience and the capacity to move by translation and rotation. Accordingly this *a priori* representation necessitates the relevant capacities of an embodied human being.

With this in mind I wish to end where I started my introduction, with Kant's and Berkeley's account of how the science of outer experience is possible. I believe that one of the reasons why they are generally thought to differ so much on their conception of space is because their general approach to philosophy is radically different. Here I will only highlight one aspect of the different attitudes of the two thinkers. I believe these two passages are indicative of the difference in their confidence to solve the great riddles of human thought; also, the contrast is amusing.

This schematism of our understanding with regard to appearances and their mere form is a hidden art in the depths of the human soul, whose true operations we can divine from nature and lay unveiled before our eyes only with difficulty. (A141/B180-1)

But it were no hard matter [...] to shew that propositions and demonstrations in geometry might be universal, though they who make them never think of abstract general ideas. (NTV, §124)

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